

**CHAPTER 10**

**PO 409**





**COMMON TRAINING**  
**PHASE FOUR**  
**INSTRUCTIONAL GUIDE**



**SECTION 1**

**EO M409.01 – IDENTIFY METHODS OF INSTRUCTION**

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-604/PG-001, *Phase 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.

Create a slide of Attachment A.

Photocopy and 3-hole punch the handouts located at Attachments B, F, G, and H for each cadet.

Make three copies of the Methods of Instruction Puzzle located at Attachment C for the activity in TP1. The two sheets should be of different colour, Description Sheets should be colour A and Typical Application Sheets should be colour B.

Prepare the Methods of Instruction Puzzles using the directions located at Attachment C.

Make one photocopy of the methods of instruction information sheets located at Attachment E.

Provide binders for each cadet to collect all work in this performance objective.

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

An in-class activity was chosen for TPs 1 and 2 as it is an interactive way to review previously learned material and confirm the cadets' comprehension of new methods of instruction.

A group discussion was chosen for TP 3 as it allows the cadets to interact with their peers and share their knowledge, experiences, opinions and feelings about the application of various methods of instruction.

**INTRODUCTION**

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall be expected to identify the methods of instruction and select the appropriate method of instruction for a given topic.

**IMPORTANCE**

It is important for cadets to be aware of the various methods of instruction when filling an instructional role. Being able to select and apply each method will help the cadets prepare and deliver an effective lesson.

---

**Teaching Point 1****Conduct an activity where the cadets will review methods of instruction.**

Time: 10 min

Method: In-Class Activity

---

---

**ACTIVITY**

---

**OBJECTIVE**

The objective of this activity is to review the methods of instruction previously taught in EO M309.02 (Identify Methods of Instruction).

**RESOURCES**

- Teaching = learning handout located at Attachment A,
- Methods of Instruction worksheet located at Attachment B,
- Methods of Instruction Puzzle located at Attachment C,
- Methods of Instruction Guide Attachment D (for instructor use only),
- OHP (if required),
- Envelopes,
- Binders,
- Pens / pencils,
- Tape, and
- Stopwatch.

**ACTIVITY LAYOUT**

Place the sample Methods of Instruction Puzzle (located at Attachment C) at the front of the classroom so it is easily accessible to all groups.

Set up two work stations and place the following at each station:

- Methods of Instruction worksheet located at Attachment B for each cadet,
- One envelope with the Method of Instruction Puzzle located at Attachment C, and
- One binder for each cadet.

**ACTIVITY INSTRUCTIONS**

1. Divide the cadets into two groups.
2. Show the cadets the slide of Attachment A and ask the cadets to:
  - (a) determine what the cartoon is implying; and
  - (b) consider why varying teaching techniques can assist with learning.

3. Introduce the sample Methods of Instruction Puzzle by:
  - (a) pointing out the two top row categories: description and typical applications;
  - (b) identifying the first column as the six methods of instruction; and
  - (c) explaining the colour coding system by pointing out that all descriptions are colour A and all typical applications are colour B.
4. Have the groups race to complete the Methods of Instruction Puzzle, according to the following rules:
  - (a) Groups must place their pieces of the puzzle in the appropriate column and row.
  - (b) A group that is having difficulty may visit the sample located at the front of the classroom up to two times.
  - (c) A penalty of 30 seconds will be added to a group's time for each visit to the sample.
  - (d) The group that completes the puzzle correctly in the least time is the winner.



Attachment B is provided for the cadets who finish the puzzle early. Ask them to make personal notes on each method of instruction. It is not necessary to fully complete the sheet but it will be a useful reference in the future.

## SAFETY

Nil.

---

## CONFIRMATION OF TEACHING POINT 1

---

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

---

## Teaching Point 2

**Conduct an activity where the cadets will describe methods of instruction.**

Time: 20 min

Method: In-Class Activity

---

## ACTIVITY

---

## OBJECTIVE

The objective of this activity is to introduce the cadets to methods of instruction.

## RESOURCES

- Methods of instruction information sheets located at Attachment E,
- Methods worksheet located at Attachment F,
- Presentation aids,
- Markers,
- Pens / pencils, and
- Tape.

## ACTIVITY LAYOUT

Set up six learning stations, to include:

- Flip chart paper,
- Markers, and
- Pens / pencils.

## ACTIVITY INSTRUCTIONS

1. Write the following on the whiteboard / flip chart:  
"Tell me, and I forget; Show me, I may remember; Involve me, and I will understand." - Chinese Proverb
2. Ask the cadets the following questions:
  - (a) What are some possible meanings of the quote?
  - (b) What are the connections between learning and instruction?
3. Divide the class into six groups and assign each group a method of instruction, to include:
  - (a) group discussion,
  - (b) guided discussion,
  - (c) role-play,
  - (d) experiential learning,
  - (e) problem-based learning, and
  - (f) case study.



If the class size is small, divide the class into three groups and assign two methods to each group.

4. Have the groups title the flip chart paper with their given method of instruction.
5. Have the cadets write the following headings on the flip chart paper:
  - (a) description,
  - (b) applications,
  - (c) preparation and development, and
  - (d) pros and cons.
6. Have each group brainstorm and record ideas relating to each section of their flip chart paper.
7. Distribute the assigned method of instruction information sheet to each group.
8. Have each group read their method of instruction information sheet and add details to their flip chart paper.



Distribute the Methods worksheet to each cadet.

9. Display charts around the room.
10. Have each group present their method of instruction. Allocate about 1–2 minutes for each group presentation.
11. Instruct the cadets to fill in the Method worksheet, making short notes, as each group presents their method to the class.



It is not necessary for the cadets to fully complete the sheet but it will be a useful reference in the future.

## SAFETY

Nil.

---

### CONFIRMATION OF TEACHING POINT 2

---

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

---

### Teaching Point 3

**Conduct a group discussion on the application of methods of instruction.**

Time: 20 min

Method: Group Discussion

---

### BACKGROUND KNOWLEDGE

---



The point of the group discussion is to draw the following information from the group using the tips for answering / facilitating discussion and the suggested questions provided.

Some examples of the types of lessons that lend themselves easily to a specific method of instruction are:

**Interactive Lecture.** Lessons with facts or dates, including history lessons.

**Demonstration and performance.** Any drill or skill, such as first aid and rope work.

**In-class activity.** Lessons that lend themselves easily to using brainstorming, worksheets and group work. This type of lesson is used to reinforce instructional topics such as instructional technique and environmental stewardship.

**Practical activity.** Map and compass, and cool-down and warm-up activities for sports.

**Game.** Lessons that include labelling or defining terms and performance-based lessons.



**Field trip.** Visit an elemental museum, visit an airport or ship, and visit a college to view possible careers.

**Group discussion.** Benefits of healthy living, qualities of a good leader and environmental issues relevant to Canada.

**Guided discussion.** Explain personal integrity and explain decision-making processes.

**Role-play.** Influence behaviours, leadership scenarios, and history.

**Experiential learning.** Participating in citizenship activities and attending weekend training.

**Problem-based learning.** Teambuilding activities and leadership styles.

**Case study.** Characteristics of a leader and various events in history.

## GROUP DISCUSSION



### TIPS FOR ANSWERING / FACILITATING DISCUSSION:

- Establish ground rules for discussion, eg, everyone should listen respectfully; don't interrupt; only one person speaks at a time; no one's ideas should be made fun of; you can disagree with ideas but not with the person; try to understand others as much as you hope they understand you; etc.
- Sit the group in a circle, making sure all cadets can be seen by everyone else.
- Ask questions that will provoke thought; in other words avoid questions with yes or no answers.
- Manage time by ensuring the cadets stay on topic.
- Listen and respond in a way that indicates you have heard and understood the cadet. This can be done by paraphrasing their ideas.
- Give the cadets time to respond to your questions.
- Ensure every cadet has an opportunity to participate. One option is to go around the group and have each cadet answer the question with a short answer. Cadets must also have the option to pass if they wish.
- Additional questions should be prepared ahead of time.



Attachment G contains a list of possible criteria to consider when choosing methods of instruction. Distribute Attachment G to each cadet before discussing the questions.



Distribute the Method of Instruction Summary handout located at Attachment H. As the methods of instruction are being discussed, the cadets may record ideas for each one on the handout.

To facilitate the discussion, record ideas on a flip chart / whiteboard.

**SUGGESTED QUESTIONS:**

What methods of instruction do you like to participate in most? Why? Provide an example.

What methods of instruction were used to instruct this lesson? What evidence do you have?

Would you choose a different method of instruction for this lesson? What and why?

What criteria do you consider most / least important when choosing a method of instruction? Why?

Ask the following questions for each method of instruction:

1. What is an application of this method?
2. Why would you choose this method?
3. Does anyone disagree?
4. Would this application apply to another method of instruction? Why or why not?
5. Are there any other lessons that would fall into this method of instruction?



Other questions and answers will develop throughout the group discussion. The group discussion should not be limited to only those suggested.



Reinforce those answers given and comments made during the group discussion, ensuring the teaching point has been covered.

**SAFETY**

Nil.

---

**CONFIRMATION OF TEACHING POINT 3**

---

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

---

**END OF LESSON CONFIRMATION**

---

The cadets' participation in the group discussion will serve as the confirmation of this lesson.

---

**CONCLUSION**

---

**HOMEWORK / READING / PRACTICE**

Nil.

**METHOD OF EVALUATION**

This EO is assessed in IAW A-CR-CCP-604/PG-001, *Phase Four Qualification Standard and Plan*, Chapter 3, Annex B, 409 PC.

**CLOSING STATEMENT**

It is pertinent to have an exposure to the various methods of instruction in order to be flexible as an instructor. Familiarity with these methods may improve the instructor's ability to select activities that are appropriate for lessons. While many lessons may be taught using more than one method of instruction, choosing the most appropriate method of instruction is key.

**INSTRUCTOR NOTES / REMARKS**

Nil.

---

**REFERENCES**

---

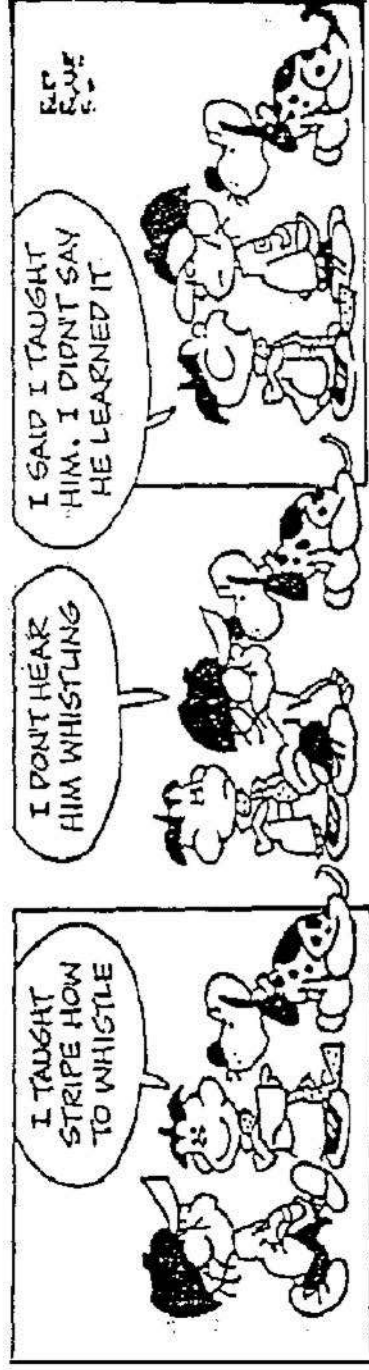
A0-055 A-P9-050-000/PT-006 Director Training and Education Policy. (2002). *Canadian Forces individual training and education system* (Vol. 6). Ottawa, ON: Department of National Defence.

A0-123 A-PD-050-001-PF-001 Chief of Defence Staff. (2001). *Central flying school flight instructors handbook*. Winnipeg, MB: Department of National Defence.

C0-379 Kizlik, R. (2009). *Education Information for new and future teachers*. Retrieved February 26, 2009 from [www.adprima.com](http://www.adprima.com)

THIS PAGE INTENTIONALLY LEFT BLANK

# Teaching = Learning?



Note: From Tiger Comics by Bud Blake. Retrieved March 10, 2009, from <http://www.kingfeatures.com/features/comics/tiger/about.html>

Figure A-1 Teaching = Learning

THIS PAGE INTENTIONALLY LEFT BLANK

Name: \_\_\_\_\_

Place 6 methods of instruction in the circles. Then list two characteristics of each.

Methods of Instruction

THIS PAGE INTENTIONALLY LEFT BLANK



## METHODS OF INSTRUCTION PUZZLE

### Directions

1. Photocopy three copies of Attachment C using coloured paper.



The top right-hand corner of each page indicates the colour paper to be used for each copy. The colours correspond with different sections of the puzzle as illustrated in Figure C-1.

2. Cut out each piece of the puzzle.
3. Refer to Attachment D to help with the assembly of the puzzle.
4. Assemble one puzzle to demonstrate to the class (as illustrated in Figure C-1).

	Description	Typical Applications
Interactive Lecture	C O L O U R A	C O L O U R B
Demonstration and Performance		
In-Class Activity		
Practical Activity		
Game		
Field Trip		

*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure C-1 Methods of Instruction Puzzle

5. Put the other two sets of the puzzle pieces in two envelopes.

Interactive Lecture	Demonstration and Performance	In-Class Activity
Practical Activity	Game	Field Trip

<p style="text-align: center;"><b>DESCRIPTION</b></p>	<p style="text-align: center;"><b>TYPICAL APPLICATIONS</b></p>
---	--

## DESCRIPTIONS

<p>Is used with one or more participants to practice skills, apply strategies, and enhance teams.</p> <p>Supports learning through a challenging activity that allows for skill practice or knowledge confirmation.</p>	<p>A method where theoretical knowledge is reinforced through participation in an activity in a real-life setting.</p>
<p>An instructor-driven method that combines both lecture and interaction to meet lesson objectives.</p> <p>Examples include videos with discussion, games, learning stations, brainstorming, debating, group work and the completion of handouts.</p>	<p>This method involves observing the instructor and performing and rehearsing the task under the supervision of the instructor.</p>

Colour A

## DESCRIPTIONS

<p>Involves a wide variety of potential activity-based learning that can be used to support learning objectives.</p> <p>Encourages participation.</p> <p>Examples include learning stations, videos, brainstorming, debating, group work, and the completion of handouts.</p>	<p>This method includes a wide variety of activity-based learning opportunities that can be used to introduce new experiences.</p>
---	--

Colour A

## TYPICAL APPLICATIONS

<p>Used to:</p> <ul style="list-style-type: none"><li>● introduce a topic;</li><li>● discover concepts and principles;</li><li>● learn terminology;</li><li>● recall terms;</li><li>● recognize equipment parts;</li><li>● carry out an application;</li><li>● confirm learning; or</li><li>● demonstrate a process.</li></ul>	<p>Used to:</p> <ul style="list-style-type: none"><li>● introduce / illustrate and confirm topics;</li><li>● reinforce and clarify classroom learning;</li><li>● inject variety into the situation; or</li><li>● allow viewing of operations or equipment that cannot easily be shown in the classroom.</li></ul>
<p>Used to:</p> <ul style="list-style-type: none"><li>● introduce a subject;</li><li>● present background information;</li><li>● review previously taught material;</li><li>● give instructions on procedures; or</li><li>● illustrate the application of rules, principles or concepts.</li></ul>	<p>Used to:</p> <ul style="list-style-type: none"><li>● teach hands-on operations or procedures;</li><li>● teach troubleshooting;</li><li>● illustrate principles;</li><li>● teach operation or functioning of equipment; or</li><li>● teach safety procedures.</li></ul>

Colour B

## TYPICAL APPLICATIONS

<p>Used to:</p> <ul style="list-style-type: none"><li>• teach both knowledge and skill lessons;</li><li>• reinforce instructional objectives;</li><li>• introduce a subject and generate interest;</li><li>• give background information;</li><li>• illustrate application of rules, principles or concepts; or</li><li>• create interactivity during a lecture.</li></ul>	<p>Used to:</p> <ul style="list-style-type: none"><li>• carry out an application;</li><li>• demonstrate a process;</li><li>• verify an explanation;</li><li>• produce a product;</li><li>• teach manipulative operations; or</li><li>• teach procedures.</li></ul>
--	--

Color B

THIS PAGE INTENTIONALLY LEFT BLANK



**METHOD OF INSTRUCTION**  
Interactive Lecture

DESCRIPTION	PRE-LESSON PREPARATION	TYPICAL APPLICATIONS	LESSON DEVELOPMENT
<p>Interactive lecture is an instructor-driven method that combines both lecture and interaction to meet lesson objectives. The lecture portions of the lesson are offset with relevant activities such as videos with discussion, games, learning stations, brainstorming, debating, group work or the completion of handouts.</p>	<p>Use attention-getters such as interesting facts, statistics or rhetorical questions to begin the lecture or to introduce new teaching points.</p> <p>Prepare participatory questions to encourage cadet participation.</p> <p>Prepare evaluative questions for confirmation of teaching points.</p> <p>Obtain or develop training aids to clarify main points.</p> <p>Prepare an in-class activity to avoid lecturing too long.</p> <p>Practice delivering the material.</p>	<p>Interactive lectures can be used with different sizes of groups to:</p> <ul style="list-style-type: none"> <li>• introduce a subject;</li> <li>• present background information;</li> <li>• review previously taught material;</li> <li>• give instructions on procedures;</li> <li>• illustrate the application of rules, principles or concepts; or</li> <li>• introduce a demonstration, discussion or performance.</li> </ul>	<p>Begin the lesson and each new TP with an attention-getter.</p> <p>Use presentation aids such as:</p> <ul style="list-style-type: none"> <li>• flip chart,</li> <li>• whiteboard, and / or</li> <li>• electronic media.</li> </ul> <p>Pay attention to signals of alertness, such as:</p> <ul style="list-style-type: none"> <li>• cadets' facial expressions, and</li> <li>• cadets' body language.</li> </ul> <p>Deal with alertness problems by:</p> <ul style="list-style-type: none"> <li>• asking for questions; and</li> <li>• posing questions to the group.</li> </ul> <p>Use visual training aids at opportune moments.</p> <p>Integrate interesting facts with lesson material to maintain interest.</p> <p>Use participatory questions or a short activity to avoid lecturing too long.</p> <p>Use questions to confirm each teaching point.</p> <p>Confirm the lesson using questions or an activity.</p>

**METHOD OF INSTRUCTION**  
**Demonstration and Performance**

DESCRIPTION	PRE-LESSON PREPARATION	TYPICAL APPLICATIONS	LESSON DEVELOPMENT
<p><b>Demonstration and Performance</b></p> <p>During demonstration and performance, the cadets observe the instructor performing the task in a demonstration, and rehearse it under the supervision of the instructor.</p> <p><b>Demonstration Method</b></p> <p>A method of instruction where the instructor, by actually performing an operation or doing a job, shows the cadet what to do, how to do it and explains why, where and when it is done.</p> <p><b>Performance Method</b></p> <p>A method in which the cadet is required to perform, under controlled conditions, the operations, skill or movement being taught.</p>	<p>The instructor must be skilled in the task.</p> <p>Gather all materials necessary to instruct the lesson.</p> <p>Break the task down into smaller sequential steps.</p> <p>Practice the lesson to ensure that steps are accurate and clear.</p> <p>Prepare a handout outlining the steps, if necessary.</p> <p>Organize the training area so that all cadets can:</p> <ul style="list-style-type: none"> <li>• see the demonstration, and</li> <li>• perform the task.</li> </ul>	<p><b>Demonstration Method</b></p> <p>Demonstration can be used to:</p> <ul style="list-style-type: none"> <li>• teach hands-on operations or procedures;</li> <li>• teach troubleshooting;</li> <li>• illustrate principles;</li> <li>• teach operation or functioning of equipment;</li> <li>• set standards of workmanship;</li> <li>• explain a theory or concept; or</li> <li>• teach safety procedures.</li> </ul> <p><b>Performance Method</b></p> <p>Performance can be used to:</p> <ul style="list-style-type: none"> <li>• teach hands-on operations or procedures;</li> <li>• teach operation or functioning of equipment;</li> <li>• teach skills; or</li> <li>• teach safety procedures.</li> </ul>	<p>Introduce the lesson by demonstrating what the cadets will be able to do at the end.</p> <p>Explain where the skill can be applied and why it is important.</p> <p>Provide a handout outlining the steps if the process is complex.</p> <p>Explain and demonstrate each step in a sequence.</p> <p>Allow cadets maximum time to practice the steps as soon as possible.</p> <p>Positively reinforce everything the cadets do correctly.</p> <p>Supervise the cadets as they practice, providing assistance or re-demonstrations when necessary.</p> <p>Have cadets perform the skill as confirmation.</p> <p>Encourage the cadets to practice beyond class time.</p>

**METHOD OF INSTRUCTION**  
**In-Class Activity**

DESCRIPTION	PRE-LESSON PREPARATION	TYPICAL APPLICATIONS	LESSON DEVELOPMENT
<p>In-class activities encompass a wide variety of activity-based learning opportunities that can be used to reinforce and practice instructional topics or to introduce cadets to new experiences. In-class activities should stimulate interest among cadets and encourage their participation, while maintaining relevance to the performance objectives. Examples of in-class activities include learning stations, videos, brainstorming, debating, and group work.</p>	<p>Create an activity that involves all cadets, which can be conducted within the time allocated.</p> <p>Clearly specify the objective of the activity.</p> <p>Obtain all materials necessary to complete the activity.</p> <p>Write out specific instructions describing what participants are supposed to do.</p> <p>Write out specific directions for conducting the activity.</p> <p>Arrange for assisting staff, if necessary, to help conduct the activity.</p> <p>Prepare handouts for cadets containing background information.</p> <p>Organize the training area into work / learning stations.</p>	<p>An in-class activity can be used for both knowledge and skill lessons to:</p> <ul style="list-style-type: none"> <li>• reinforce instructional objectives;</li> <li>• introduce a subject and generate interest;</li> <li>• present background information;</li> <li>• give direction on procedures;</li> <li>• introduce a demonstration, discussion or performance;</li> <li>• illustrate the application of rules, principles or concepts;</li> <li>• create interactivity during a lecture; or</li> <li>• review, clarify or summarize information.</li> </ul>	<p>Introduce the activity to the whole group.</p> <p>Brief participants on what will be expected of them.</p> <p>Stress timings.</p> <p>Ensure all resources are available.</p> <p>Begin the activity.</p> <p>Supervise and assist the groups as required.</p> <p>Conclude the activity.</p> <p>Confirm the TP or lesson.</p> <p>Debrief the cadets.</p>

**METHOD OF INSTRUCTION**  
**Practical Activity**

DESCRIPTION	PRE-LESSON PREPARATION	TYPICAL APPLICATIONS	LESSON DEVELOPMENT
<p>Practical activities encompass a wide variety of activity-based learning opportunities that can be used to reinforce and practice skills or to introduce cadets to new experiences. Practical activities should stimulate interest among cadets and encourage their participation, while maintaining relevance to the performance objective.</p>	<p>The instructor must be skilled in the task.</p> <p>Gather all materials necessary to instruct the lesson.</p> <p>Organize the training area so that all cadets will have space to perform the task safely.</p> <p>Ensure there is enough time to conduct the complete activity or breakdown the task into smaller stages.</p> <p>Prepare a handout outlining the steps, if necessary.</p> <p>Arrange for assisting staff, if necessary.</p> <p>Plan for composition of groups.</p>	<p>If it is used to teach new material, it must be combined with other methods to ensure cadets have the necessary background information to complete the activity.</p> <p>The practical activity method can be used to:</p> <ul style="list-style-type: none"> <li>• carry out an application;</li> <li>• demonstrate a process;</li> <li>• verify an explanation;</li> <li>• produce a product;</li> <li>• introduce a subject;</li> <li>• teach manipulative operations;</li> <li>• teach procedures;</li> <li>• teach troubleshooting;</li> <li>• illustrate principles;</li> <li>• teach equipment operation; or</li> <li>• teach safety.</li> </ul>	<p>Review background information.</p> <p>Distribute the handout, if necessary.</p> <p>Introduce the activity to the group.</p> <p>Stress safety.</p> <p>Brief the cadets on what they will be expected to do.</p> <p>Brief assisting staff on what they will be expected to do.</p> <p>Begin the activity.</p> <p>Supervise the cadets and provide assistance, if necessary.</p> <p>Watch for safety infractions and stop the activity, if necessary.</p> <p>Conclude the activity.</p> <p>Debrief the cadets.</p>

**METHOD OF INSTRUCTION**  
**Game**

DESCRIPTION	PRE-LESSON PREPARATION	TYPICAL APPLICATIONS	LESSON DEVELOPMENT
<p>Games are used with one or more participants to practice skills, apply strategies and enhance teams. It is critical that the game supports learning through a challenging activity that allows for skill practice or knowledge confirmation.</p>	<p>Develop a simple game with the following characteristics:</p> <ul style="list-style-type: none"> <li>• is fast to play;</li> <li>• is easy and quick to organize;</li> <li>• has few rules;</li> <li>• uses minimal equipment; and</li> <li>• involves maximum participation.</li> </ul> <p>If possible, use variations of games cadets know from childhood or television.</p> <p>Determine the following when developing the rules of the game:</p> <ul style="list-style-type: none"> <li>• individual or team play,</li> <li>• how to change leaders,</li> <li>• what the leader will do,</li> <li>• what the followers will do,</li> <li>• timings for the game,</li> <li>• how to signal the start and stop of the game,</li> <li>• how to ensure safety.</li> </ul> <p>Obtain the resources needed to play the game.</p> <p>Organize the training area to play the game.</p>	<p>Games create variety and arouse interest but must also support learning.</p> <p>Games can be used to:</p> <ul style="list-style-type: none"> <li>• introduce a topic;</li> <li>• discover concepts and principles;</li> <li>• learn terminology;</li> <li>• recall terms;</li> <li>• recognize equipment parts;</li> <li>• develop strategies and tactics;</li> <li>• carry out an application;</li> <li>• demonstrate a process;</li> <li>• practice interpersonal skills; and / or</li> <li>• confirm learning.</li> </ul>	<p>Brief the cadets on the following:</p> <ul style="list-style-type: none"> <li>• the objective of the game, and</li> <li>• rules of the game.</li> </ul> <p>Play the game.</p> <p>Supervise closely to :</p> <ul style="list-style-type: none"> <li>• ensure that the game is played in the manner expected;</li> <li>• ensure that the game is played safely; and</li> <li>• ensure maximum participation.</li> </ul> <p>End the game.</p> <p>Debrief the cadets.</p>

**METHOD OF INSTRUCTION**  
**Field Trip**

DESCRIPTION	PRE-LESSON PREPARATION	TYPICAL APPLICATIONS	LESSON DEVELOPMENT
<p>Theoretical knowledge is reinforced through participation in an activity in a real-life setting. Prior planning helps to ensure all pre-training and safety standards are met. Field trip activities are planned and carried out to achieve clear instructional objectives that are understood by the cadets. Examples include trips to areas of local interest, flying / gliding, hiking and / or sailing.</p>	<p>Specify the objective(s) of the field trip.</p> <p>Determine the time and location of the field trip.</p> <p>Obtain necessary authorizations.</p> <p>Determine the timings.</p> <p>Determine the activities or demonstrations needed to achieve the objectives.</p> <p>Determine if trained personnel will be available to assist.</p> <p>Arrange the following, if necessary:</p> <ul style="list-style-type: none"> <li>• transportation,</li> <li>• supervision, and</li> <li>• meals.</li> </ul> <p>Determine if the cadets will be allowed to use equipment or participate in a training activity.</p> <p>Determine if all cadets can take part at once or if they need to rotate through.</p> <p>Divide the cadets into groups, if necessary.</p> <p>Ensure safety.</p>	<p>The field trip is used to:</p> <ul style="list-style-type: none"> <li>• introduce / illustrate and confirm topics;</li> <li>• reinforce and clarify classroom learning;</li> <li>• inject variety into the training situation; or</li> <li>• allow cadets to view operations or equipment that cannot easily be shown in the classroom.</li> </ul>	<p>Inform cadets as soon as possible of the following:</p> <ul style="list-style-type: none"> <li>• time of the field trip,</li> <li>• location of the field trip, and</li> <li>• timings for departure.</li> </ul> <p>Brief cadets on the following prior to departure:</p> <ul style="list-style-type: none"> <li>• objectives of the field trip,</li> <li>• timings and groupings for activities and demonstrations, and</li> <li>• how they will participate during the field trip.</li> </ul> <p>During the field trip ensure the following:</p> <ul style="list-style-type: none"> <li>• the safety of all cadets,</li> <li>• maximum participation, and</li> <li>• the objectives are met.</li> </ul> <p>After the field trip:</p> <ul style="list-style-type: none"> <li>• debrief the cadets; and</li> <li>• confirm that objectives have been met.</li> </ul> <p>Express appreciation to the facilitators of the field trip.</p>

<b>Guided Discussion</b>	
<p><b>Description:</b></p> <p>A method in which learners are guided in steps to reach instructional objectives by drawing out their opinions, knowledge, experience and capabilities, and by building on these to explore and develop new material. Learners discuss issues to expand their knowledge of the subject.</p>	
<p><b>Applications:</b></p> <ul style="list-style-type: none"> <li>• Develop imaginative solutions to problems (eg, through brainstorming).</li> <li>• Stimulate thinking and interest and secure learner participation.</li> <li>• Emphasize main teaching points.</li> <li>• Supplement lectures, reading or laboratory exercises.</li> <li>• Determine how well learners understand concepts and principles.</li> <li>• Prepare learners to apply theory or procedure.</li> <li>• Clarify or review points.</li> <li>• Determine learner progress and the effectiveness of prior instruction.</li> <li>• Foster attitudinal change.</li> </ul>	
<p><b>Preparation and Development:</b></p> <p>Reading material should be provided to learners in advance so that learners are familiar with the concepts that will be discussed.</p> <p>To begin, an instructor should introduce the topic and scenario; outline the main discussion points; state the what, where and why of the lesson; and create an open environment.</p> <p>During the body of the lesson, the instructor poses open lead-off questions to guide the discussion toward the aim. The instructor concludes the lesson by reviewing all the main points contributed by both the learner and instructor and by relating points back to the lesson aim.</p>	
<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Increases cadet interest.</li> <li>• Increases cadet acceptance and commitment.</li> <li>• Uses cadet knowledge and experience.</li> <li>• Results in more permanent learning because of the high degree of cadet participation.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Requires highly skilled instructors to redirect discussion using rephrased comments or summaries.</li> <li>• Requires preparation by cadets.</li> <li>• Limits content.</li> <li>• Consumes time.</li> <li>• May not accomplish goals.</li> <li>• Can get off topic.</li> <li>• Some members may not participate.</li> </ul>

### Group Discussion

**Description:**

A method to discuss issues and share knowledge, opinions and feelings about a topic in small groups. The instructor's questioning is flexible and minimal, and encourages reflection on personal experiences and opinions through peer interactions.

**Applications:**

- Develops imaginative solutions to problems.
- Emphasizes main teaching points.
- Determines individual progress and the effectiveness of prior instruction.
- Prepares individuals for application of theory or procedure.

**Preparation and Development:**

Prepare an issue or problem that will interest the cadets and stimulate discussion.

Organize cadets into small groups.

Put groups in circles or horseshoes.

Pose a lead-off question and encourage participation of all cadets.

**Advantages:**

- Increases cadet interest.
- Increases cadet acceptance and commitment.
- Uses cadet knowledge and experience.
- Results in more permanent learning because of the high degree of cadet participation.

**Disadvantages:**

- Requires highly skilled instructors.
- Requires preparation by cadets.
- Limits content.
- Consumes time.
- Restricts size of group.
- Requires selective group composition.



<b>Problem-Based Learning</b>	
<p><b>Description:</b></p> <p>A method that facilitates the learning of principles and concepts by having learners work on solving a problem drawn from the work environment. Instructors must pose thought-provoking questions and guide cadets without influencing their decisions.</p>	
<p><b>Applications:</b></p> <p>It allows learners to:</p> <ul style="list-style-type: none"> <li>• learn through practicing what they will have to do on the job;</li> <li>• learn by imitating others' behaviour;</li> <li>• learn from the feedback of others; and</li> <li>• learn through practice and reflection on each scenario in which they participate.</li> </ul>	
<p><b>Preparation and Development:</b></p> <p>This method is usually conducted with small groups of 5–7 learners or with pre-established teams.</p> <p>Instructors prepare carefully constructed problems that are realistic.</p> <p>During the lesson, learners analyze the problem and work toward solving it.</p> <p>Instructors facilitate learning by posing questions to get learners thinking and talking (eg, What are the clues, facts and any guesses about the problem and its causes? What other information is needed?). The instructor should ensure that all learners participate because discussion is key to learning, but they should try not to influence decisions. Instructors may also challenge learners' thinking by questioning learners without leading them to the correct answer (eg, What does this mean? What are the implications?).</p>	
<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Encourages participation by cadets.</li> <li>• Maintains relevance to performance objectives.</li> <li>• Many resources are involved.</li> <li>• Problems are realistic for learners to relate to.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Critical thinking skills are required.</li> <li>• Broad knowledge of the subject matter is required.</li> <li>• Instructors must be experienced in facilitating learning.</li> </ul>

## Role-Play

### Description:

A method of interaction in which learners play out and practice realistic behaviors by assuming specific roles and circumstances.

### Applications:

It allows learners to:

- practice responding to various situations that are similar to those they will encounter; and
- develop human interaction skills.

### Preparation and Development:

Begin the lesson by clearly explaining the objective of the lesson (what, where, when and why). It is critical to explain that role-playing is a learning process and learners are not expected to play their roles perfectly from the start. This will help put learners at ease.

The instructor must clearly explain each role the learners will play. This is followed by a demonstration of the role-play either on video or through a live performance by instructional staff. Learners are paired or grouped together and the role-plays are cycled through. The instructor does not interfere during the role-play unless learners veer off topic, require cues or assistance, or a safety issue arises. Following each role-play, the instructor debriefs the learner on their performance. Correct behaviours should be positively reinforced, and areas requiring improvement identified.

### Advantages:

- High participation, interactive delivery.
- May lead to discussions.
- Experience is developed in a supportive environment.
- Can be very versatile depending on the topic.

### Disadvantages:

- Participants can be easily sidetracked.
- Needs a lot of preparation and controls must be clarified.
- Competent, experienced and prepared instructors are needed.
- Not always successful due to group composition.

<b>Experiential Learning</b>	
<p><b>Description:</b></p> <p>A method using knowledge and skills to meet objectives. There are four stages to this method: concrete experience, reflective observation, abstract conceptualization, and active experimentation.</p>	
<p><b>Applications:</b></p> <p>The method teaches:</p> <ul style="list-style-type: none"> <li>• practical skills,</li> <li>• transferable skills,</li> <li>• problem solving, and</li> <li>• process or principle.</li> </ul>	
<p><b>Preparation and Development:</b></p> <p>Step 1: Concrete Experience. Individuals have an experience and take time to identify and define it.</p> <p>Step 2: Reflective Observation. Provides time for individuals to reflect on visual, emotional, and cognitive aspects of the experience.</p> <p>Step 3: Abstract Conceptualization. Individuals work to understand and make connections between the experience and prior experiences.</p> <p>Step 4: Active Experimentation. Individuals look ahead to plan the application of skills and knowledge acquired for future experiences.</p>	
<p><b>Advantages:</b></p> <ul style="list-style-type: none"> <li>• Knowledge is shared by the participants.</li> <li>• Most participants will create new knowledge.</li> <li>• Everyone is actively involved in the teaching and learning process.</li> <li>• Numerous resources are used.</li> </ul>	<p><b>Disadvantages:</b></p> <ul style="list-style-type: none"> <li>• Expensive as it uses many resources.</li> <li>• Requires a lot of planning, preparation and organization prior to the activity.</li> <li>• The instructor must master the subject developed.</li> <li>• May not be a good process for learning details.</li> </ul>

<b>Case Study</b>	
<b>Description:</b> A method using a written problem, situation or scenario to achieve a performance objective.	
<b>Applications:</b> <ul style="list-style-type: none"><li>• Used for learning principles, attitudes and concepts.</li><li>• Develops critical thinking and promotes teamwork.</li></ul>	
<b>Preparation and Development:</b> Give a problem that matches the experience level of the cadets. Provide time to analyze it. Responses to the problem should be recorded under four headings: <ol style="list-style-type: none"><li>1. Facts,</li><li>2. Assumptions,</li><li>3. Problems, and</li><li>4. Solutions.</li></ol>	
<b>Advantages:</b> <ul style="list-style-type: none"><li>• Cadets can help each other learn.</li><li>• High energy.</li><li>• Relates to real-life applications.</li><li>• Can be used for past, present and future applications.</li></ul>	<b>Disadvantages:</b> <ul style="list-style-type: none"><li>• Must be well organized and facilitated to ensure learning takes place.</li></ul>

# Methods

**Write a method of instruction in each rectangle. Listen to each group present their method. In each cloud, list some characteristics defining the method.**

The form consists of two rows of three thought bubbles and three rectangles each. The thought bubbles are intended for listing characteristics of a method, and the rectangles are for writing the method of instruction.

THIS PAGE INTENTIONALLY LEFT BLANK

## METHOD MADNESS

Topic: \_\_\_\_\_

Group Members: \_\_\_\_\_

Discuss the factors below in order to reach a decision on adopting a method of instruction.

<p><b>Is the objective to:</b></p> <ul style="list-style-type: none"> <li>• provide theory?</li> <li>• manual or procedural skills?</li> <li>• develop concepts?</li> <li>• instill desired attitudes?</li> <li>• develop teamwork?</li> </ul>	<p><b>What is the type of content:</b></p> <ul style="list-style-type: none"> <li>• Knowledge?</li> <li>• Theory?</li> <li>• How difficult is it?</li> </ul>
<p><b>Know your cadets by determining the:</b></p> <ul style="list-style-type: none"> <li>• existing skill, knowledge and attitude level of the students,</li> <li>• class size,</li> <li>• behaviour,</li> <li>• qualifications,</li> <li>• experience, and</li> <li>• skill level.</li> </ul>	<p><b>Establish Materials / Equipment / Facilities:</b></p> <ul style="list-style-type: none"> <li>• What?</li> <li>• Where?</li> <li>• Available?</li> <li>• Time?</li> <li>• Is it critical?</li> </ul>
<p><b>Consider cost:</b></p> <ul style="list-style-type: none"> <li>• Are funds available?</li> <li>• Is it cost effective?</li> </ul>	<p><b>Know your ability as an instructor by determining:</b></p> <ul style="list-style-type: none"> <li>• Existing skill, knowledge and attitude level?</li> <li>• Behaviour?</li> <li>• Availability?</li> <li>• Qualification?</li> <li>• Experience?</li> <li>• Skill level?</li> </ul>

THIS PAGE INTENTIONALLY LEFT BLANK



## METHODS OF INSTRUCTION SUMMARY

**Interactive Lecture.** The instructor presents material such as events and facts and the cadets participate by responding to questions and engaging in discussion.

Examples:	
-----------	--

**Demonstration and performance.** The instructor demonstrates a movement or skill, showing the cadet what to do, and explains, why, where and when it is applied. Then the cadets are given time to practice the movement or skill.

Examples:	
-----------	--

**In-class activity.** A variety of activities that reinforce instructional topics.

Examples:	
-----------	--

**Practical activity:** An interactive way to allow cadets to experience skill-based lessons.

Examples:	
-----------	--

**Game.** Fun and challenging activity that allows for skill practice or knowledge confirmation.

Examples:	
-----------	--

**Group discussion.** Cadets learn from peer responses, which provoke them to examine their own thoughts and experiences.

Examples:	
-----------	--

**Guided discussion.** The instructor directs and stimulates the cadets' learning through a series of structured questions.

Examples:	
-----------	--

**Role-play.** Cadets are assigned roles requiring them to interact with others in responding to various realistic situations.

Examples:	
-----------	--

**Experiential learning.** Allows cadets to acquire new knowledge or skills through direct experience.

Examples:	
-----------	--

**Problem-based learning.** Cadets analyze a problem and apply the steps in the problem-solving method.

Examples:	
-----------	--

**Case study.** The primary purpose may not be to find a correct solution to the problem or issue posed, but to understand the principles involved in reaching a solution or analyzing an issue.

Examples:	
-----------	--



**COMMON TRAINING**  
**PHASE FOUR**  
**INSTRUCTIONAL GUIDE**



**SECTION 2**

**EO M409.02 – IDENTIFY ELEMENTS OF A POSITIVE LEARNING ENVIRONMENT**

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-604/PG-001, *Phase 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 Create a Positive Learning Environment Crossword Puzzle located at Attachment B for each cadet.

Ensure the different types of attention signals described in TP 3 are available for this EO.

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

An interactive lecture was chosen for TPs 1 and 3 to provoke thought and stimulate the cadet's interest in the importance of a physically and emotionally safe learning environment and a well-managed classroom / training area.

A group discussion was chosen for TP 2 as it allows the cadets to interact with their peers and share their knowledge, experiences, opinions and feelings about stress management.

---

**INTRODUCTION**

---

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall have identified the importance of a physically and emotionally safe learning environment, discussed various techniques to manage stress and discussed classroom / training area management techniques.

## **IMPORTANCE**

It is important for the cadets to identify elements of a positive learning environment because it will provide them with specific instructional strategies for motivating and engaging the cadets, for conducting interesting lessons and for boosting the cadets' self-confidence and self-esteem.

**Teaching Point 1****Describe the importance of a physically and emotionally safe learning environment.**

Time: 15 min

Method: Interactive Lecture



The cadets should be able to relate to sitting in a classroom trying to listen to an instructor who may have been knowledgeable about the subject but who was unable to engage them. Brainstorm with the cadets the reasons why they may have been unable to concentrate on the lesson. Draw out aspects of the environment such as lighting, ventilation, physical space, the instructor's attitude toward the group and the cadets' relationship with their peers. Explain that these are aspects of the learning environment that directly affect their ability to learn.

**THE IMPORTANCE OF A PHYSICALLY AND EMOTIONALLY SAFE LEARNING ENVIRONMENT**

"Everything we know or sense about the world comes to us, in one way or another, through the environment in which we live." (Bell, 2007, <http://www.dialogueonlearning.tc3.edu/model/environment/Introduction-grp.htm>)

The learning environment includes the "physical environment" of the classroom or training area and the "emotional environment" that the cadets and instructor create in the classroom or training area. Aspects of the physical and emotional environment such as the lesson location, availability of resources, and cadets' level of stress and anxiety affect learning but are sometimes outside of the instructors' control. However, it is important that instructors try to minimize the effects of such hindrances to learning when they plan their lessons rather than simply know they exist and feel powerless to change them.

**Physical Environment**

The physical environment for cadet training will most likely change from training session to training session or even from lesson to lesson. Instructors fortunate enough to have a dedicated learning space will find it easier to create a stimulating physical environment, while others who are transient will find it more difficult. The first priority when considering the physical environment is safety. As a minimum standard the physical environment should have:

**Adequate lighting.** The connection between light and our emotions has long been recognized. Studies have also shown that learners perform better in brightly-lit learning environments than dimly-lit ones. It has also been shown that a learning environment with lots of natural light is more conducive to learning.

**Good ventilation.** It is important to be conscious of the temperature and air quality in a room because people are especially sensitive to these two elements. Cooler temperatures promote relaxation and receptivity while warmer temperatures promote acting out. If possible, open a window, turn on a fan or open a door to control temperature and air quality.

**A colourful atmosphere.** There is a connection between colour and moods and emotions. Warm colours (eg, red, orange, yellow) are exciting and may lead to acting out while cool colours (eg, blue, green, purple) are more relaxing. Researchers in brain-based learning suggest that the best colours for elements of the physical environment are yellow, light orange, beige or off-white. The cadets may react differently to the same colour depending on their emotional state. If cadets are feeling stressed, the colour red, for example, may bring out aggressive feelings but if they are relaxed, red can attract their attention.



The physical environment can be improved by adding colourful, visually appealing posters, pictures or other graphic images to the walls. If an instructor lacks control over these elements they should ensure that learning aids (handouts, electronic presentations, transparencies or flip charts) are colourful.

**Flexible seating arrangements.** The instructor should set up a learning environment that allows cadets to move quietly to take part in small and whole group learning activities. Having the cadets move from large to small group interactions will provide variety help them learn new material more efficiently.

**Movement.** Cadets learn better if there is movement during a period of instruction. The brain needs glucose, oxygen and water to function properly. Even if the air quality is good, the cadets may still be oxygen deprived because of improper breathing patterns caused by stress and anxiety. Lack of oxygen to the brain negatively impacts its ability to process information; increasing the flow of oxygen to the brain can improve its ability to process information. Physical activity is an excellent way to increase oxygen flow to the brain. Instructors can accomplish this by beginning their classes with 30–60 seconds of stretching or deep breathing and by taking breathing breaks during longer lessons or when they notice that the cadets' attention is lagging.

Water is also important for good brain functioning. Instructors should encourage the cadets to drink beverages, preferably water or fruit juices during lessons.



The brain consumes twenty percent of the body's energy.



Organize the cadets into pairs and have them alternate as they explain to one another how adequate lighting, good ventilation, colourful atmosphere, flexible seating arrangements and movement affect learning. Circulate around the room to get a sense of how well the cadets are processing the information. After all cadets have participated and all elements have been explained, continue with the lesson.

## Emotional Environment



"Learning occurs best in an environment that contains positive interpersonal relationships and interactions, comfort and order, and in which the learner feels appreciated, acknowledged, respected and validated." (Earl, 2003, p. 39)

Instructors have a responsibility to make their classrooms as emotionally safe as possible so that learning can take place. If the brain senses a threat, it will ignore all other information to deal effectively with the threat. The perception of threat causes a "fight or flight" response which causes the body to transfer blood from the frontal cortex, or thinking part of the brain, to the bottom and back of the brain to prepare for survival. Any time cadets experience a sense of danger, whether physical or emotional, their bodies and brains react with this "fight or flight" response.

To maximize learning, instructors must create an emotional environment of relaxed alertness that allows the cadets to risk saying a wrong answer or solving a problem incorrectly. This is an emotionally safe learning environment.



Emotional safety is necessary for intellectual risk taking. (Earl, 2003, p. 103)

There are a number of strategies that can be used to achieve an emotionally safe learning environment. It is important for the instructor to:

**Lead with a positive attitude.** The cadets may have plenty of complications and negativity in their daily lives and will appreciate a positive environment with a positive and enthusiastic instructor. When instructors show interest in what they are teaching, the cadets will become interested as well.

**Establish a friendly learning environment.** The instructor should make it safe to learn by treating all cadets equally and respectfully and insisting that cadets treat one another in the same way. The instructor can build trust by keeping their word and by keeping information confidential if asked to do so. They should encourage the sharing of ideas, experiences and information and value the contribution of each learner. One simple thing that instructors can do is to be sensitive to the cadets' average attention span.



Use a maximum of one minute per year of age, as a guide, to get uninterrupted listening or active participation in an activity.

**Make learning fun.** The instructor should challenge the cadets with interesting activities that are not too easy or too difficult. They should try to challenge the cadets just beyond their present level of ability. If they are challenged too far beyond their level of ability, the cadets will give up but if they are challenged too little, they will become bored. Encourage the cadets to take risks and reward effort and energy as well as correctness. The instructor should listen empathetically by acknowledging nervousness, showing patience and being non-judgmental of the cadets' responses. In addition, the instructor should never single out cadets and always be attentive to those who seem isolated from the group. They should never use put-downs or sarcasm.



Instructors should keep the first challenge easy and the encouragement heavy and remember that they are students too but with the added responsibility of helping others learn.

**Encourage supportiveness.** The instructor should be supportive of the cadets and encourage them to be supportive of one another. Instructors can create a supportive environment by leading applause, thanking cadets for their input and rewarding effort.

**Appeal to a variety of senses.** The instructor should stimulate the cadets' senses in a variety of ways which will help them feel positive about the learning experience. As well, the instructor should be aware that the cadets will have different learning styles that should be catered to by using many different learning activities.

**Provide feedback.** The instructor's feedback should be specific and help the cadets compare their current progress to past performance rather than compare it to the performance of others. They should always be accurate and consistent and when they assign specific tasks to be done, they should tell the cadets that they will be coming back to check on their progress.



When providing feedback, the instructors should stress what is to be done rather than confuse the cadets by giving attention to what is not to be done.

**Use encouragement.** The instructor should use encouragement to boost the cadets' enthusiasm and self-esteem but must be careful not to confuse encouragement with reinforcement. Encouragement will make the cadets feel better but it will not improve their learning in the same way as providing specific feedback regarding

a specific task. Instructors should be selective and provide encouragement when it is due to keep the cadets on track.



Instructors should encourage the cadets to look at incorrect responses or unsuccessful attempts at problem solving as research and not failure.

**Communicate clear expectations and routines.** A sense of safety comes from consistent and predictable behaviours on the part of the instructor. Instructors should not be too rigid but should develop consistent procedures for beginning lessons, getting the cadets' attention and handling disruptions and distractions. They should start every lesson by telling the cadets specifically what they will know or be able to do by the end of the lesson. They should conclude each lesson by reminding the cadets what they have learned or are able to do.

**Provide processing time.** Instructors should ensure that the cadets have enough time to process the information that they have just received. They should stop periodically during a lesson and allow the cadets to interact over new material which will help them store it in long-term memory for later recall. Instructors can use a variety of group or paired activities to enable the cadets to interact with one another. They can, for example, ask each cadet in a small group to successively respond to a question or comment on an idea. A variation of this type of interaction would be pairing cadets and having them respond alternately by listing one item of a series, by identifying a specific cause or effect of something or by providing a specific reason. The key is for the instructor to stop talking, ask a question, set a time limit and have the cadets interact in groups or pairs to process the information just presented.



Talking or lecturing beyond ten minutes is like pouring water into a glass that is already full.

Instructors must ensure, as much as possible, that the environment in which they instruct their lessons is learner friendly. The environment does affect learning and instructors must find ways to positively impact the learning environment for the cadets. The cadets should feel comfortable when giving answers, taking part in discussions and solving problems. Their incorrect responses to oral questions or attempts at solving a problem should not be put down or belittled but rather should be seen as the beginning of discovery.



Adult learners can overcome a poor learning environment because they are often self-motivated with a genuine interest in the subject or desire for personal gain. Cadets may not have a high degree of self-motivation so it is important to create a learning environment that will motivate them.

---

### CONFIRMATION OF TEACHING POINT 1

---

Organize the cadets into pairs and have them alternately explain to one another two ways the instructor can establish a friendly learning environment, make learning fun and provide processing time.

Circulate around the room to get a sense of how well the cadets are processing the information. After all cadets have participated and the three items have been explained, continue with the lesson.



**Teaching Point 2****Conduct a group discussion on stress management techniques.**

Time: 15 min

Method: Group Discussion

**BACKGROUND KNOWLEDGE**

The purpose of the group discussion is to draw the following information from the group using the tips for answering / facilitating discussion and the suggested questions provided.

**STRESS**

Stress is the body's reaction to a perception of a physical or emotional threat. The threat can be real or imagined; it is the perception of threat that triggers the stress response. During an acute stress response, the nervous system is activated automatically and the body experiences increased levels of cortisol, adrenalin and other hormones that produce an increased heart rate, quickened breathing rate and higher blood pressure. Blood is carried from the extremities to the big muscles preparing the body to fight or run away, which is commonly known as the "fight or flight" response. When the perceived threat is gone, our systems are designed to return to normal but this doesn't always happen because the threats can be frequent which causes constant anxiety.

Positive and negative stress are commonly labelled as eustress and distress respectively.

**EUSTRESS**

Eustress is described as good stress and is created naturally when we participate in exciting but safe activities or when we trick the body into releasing small amounts of cortisol into the bloodstream. This type of stress pushes a person to do better and reach goals. Situations that might produce eustress include:

- riding a roller coaster;
- successfully completing an activity; or
- passing a test.



The prefix 'eu' in the word eustress is taken from the word euphoria which means a feeling of well being.

**DISTRESS**

Distress is described as bad stress. This type of stress causes worry, anger or pain. Situations that might produce distress include:

- lack of sleep,
- accidents, or
- negative relationships with others.



Stress affects individuals differently. A situation that causes eustress for one person may cause distress for another.

## TECHNIQUES FOR CREATING POSITIVE STRESS

Positive stress releases a small amount of cortisol into the bloodstream which can help the cadets learn more easily by improving their memory function. The instructor should use techniques, such as those described below, to create positive stress.

**Design activities that challenge cadets.** The instructor should design activities that challenge the cadets just beyond their present level of ability to encourage interest and prevent boredom.

**Use movement.** Instructors should incorporate movement into every lesson because it increases oxygen flow to the brain, which helps the cadets learn better. The movement should occur naturally during the lesson when the cadets are forced to stand up to give responses or move around to engage in a learning or confirmation activity. It does not have to be long but should be frequent during a lesson, which can have a cumulative effect on the brain.

**Use music.** Music, in addition to being enjoyable, has health benefits because it helps the body to produce cortisol. Instructors should have a good selection of music that they regularly use during their lessons as background noise or as an attention signal to begin a lesson or transition from one activity to another.

**Breathe Properly.** Breathing is how oxygen gets into the bloodstream to be delivered to the rest of the body. As automatic as it is, cadets may not be breathing well and should practice deep breathing activities to help increase oxygen flow.



Conduct a deep breathing activity by having the cadets:

1. lie on the floor on their back or sit in a comfortable position;
2. place one hand on their upper chest and one hand on their belly just above their waist;
3. breathe in slowly through their nose and feel the hand on their belly rise;
4. breathe out slowly through their mouth and feel the hand on their belly gradually lower;  
and
5. repeat steps three and four a few times.

If this activity is too disruptive or time consuming, simply encourage the cadets to take a few deep breaths periodically throughout a lesson to get more oxygen from the bloodstream to the brain, which will improve brain function.

## TECHNIQUES FOR CONTROLLING NEGATIVE STRESS

If threats, or the perception of threats, are persistent, stress will become long term or chronic. The body can handle temporary or acute stress but not chronic stress and it may become ill. At the least, chronic stress impedes learning and must be prevented. In addition to using some of the techniques described above to create good stress, instructors should incorporate the following in their lessons to manage negative stress.



It is estimated that ninety percent of doctors' visits are for conditions in which stress, at least, plays a role.

**Inform cadets of expectations.** Instructors must clarify their expectations and communicate them to the cadets. Be specific, when assigning tasks, about what cadets will be expected to do, how they will be assessed and how they will receive extra training if necessary. Develop routines for beginning a lesson, transitioning from one activity to another during a lesson, getting the cadets' attention, dealing with different types of learners and ending a lesson. Routines may be repetitive and the cadets may complain at first, but routines that are realistically developed and consistently applied will allow the cadets to predict what will happen, which will ease their stress.

**Provide necessary resources.** The instructor must clearly and specifically inform the cadets what is expected of them and ensure that the cadets have all the material they need to complete the learning activity. The cadets will have limited time to complete the activity and will become frustrated if they have to collect material or improvise on their own. The instructor must ensure that all necessary equipment and supplies are readily available in the learning environment.

**Provide adequate time to accomplish the task.** When determining the amount of time for a task a good rule to follow is to assign one minute for each year of age. If an activity is long it should be broken down into manageable tasks.

**Incorporate physical activity.** The instructor should ensure that cadets move during every class either naturally as part of an activity or artificially when they notice the cadets' attention lagging.

**Provide time to process information.** Give the cadets enough time during a task to interact with their peers, in some way or another, over the content to help move it into long-term memory. This can be accomplished in a number of ways such as group interactions or some form of paired sharing. The important thing is to prevent time from becoming a hindrance to learning.

**Practice relaxation techniques.** There are a number of relaxation techniques to control negative stress. The benefit of such techniques is that they trick the body into thinking that the threat is gone and the increased blood circulation carries more oxygen to the brain, which allows the body to relax.

---

## GROUP DISCUSSION

---



### TIPS FOR ANSWERING / FACILITATING DISCUSSION:

- Establish ground rules for discussion, eg, everyone should listen respectfully; don't interrupt; only one person speaks at a time; no one's ideas should be made fun of; you can disagree with ideas but not with the person; try to understand others as much as you hope they understand you; etc.
- Sit the group in a circle, making sure all cadets can be seen by everyone else.
- Ask questions that will provoke thought; in other words avoid questions with yes or no answers.
- Manage time by ensuring the cadets stay on topic.
- Listen and respond in a way that indicates you have heard and understood the cadet. This can be done by paraphrasing their ideas.
- Give the cadets time to respond to your questions.
- Ensure every cadet has an opportunity to participate. One option is to go around the group and have each cadet answer the question with a short answer. Cadets must also have the option to pass if they wish.
- Additional questions should be prepared ahead of time.

**SUGGESTED QUESTIONS:**

- Q1. What is stress?
- Q2. How does breathing deeply help create positive stress?
- Q3. What are five things instructors can do to control negative stress?
- Q4. How can practicing relaxation techniques help control negative stress?
- Q5. How does music create positive stress?



Other questions and answers will develop throughout the group discussion. The group discussion should not be limited to only those suggested.



Reinforce those answers given and comments made during the group discussion, ensuring the teaching point has been covered.



If time allows, conduct an activity where the cadets will practice one of the relaxation exercises described in Attachment A.

---

**CONFIRMATION OF TEACHING POINT 2**

---

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

---

**Teaching Point 3**

**Identify classroom / training area management techniques.**

Time: 20 min

Method: Interactive Lecture

---

The classroom / training area for cadets may vary from session to session or even lesson to lesson depending on the type of training being conducted and the space available at the unit. Even if the instructor has the luxury of a dedicated space, it is important that they develop a classroom / training area management plan that will maximize the time available for a lesson. A management plan will prevent the instructor from wasting time getting the cadets' attention, transitioning from one activity to another, handling distractions and dealing with different types of learners.

A management plan should include the following but can be more detailed.

## ATTENTION SIGNALS



Attention signals will work only if the cadets know what to do upon hearing or seeing the signal and the instructor has a positive expectation of success. If you do it, but do not actually expect the cadets to give you their attention, most likely they will not.

The instructor may find it useful to use an attention signal which immediately captures the cadets' attention when beginning a lesson, giving instructions, passing on information or transitioning from one activity to another. The attention signal should be both auditory and visual and the cadets should be taught to stop talking, stop working and establish eye contact immediately upon hearing and seeing the signal. Such an approach, when it becomes entrenched into the lesson's routine, will prevent the instructor from becoming frustrated and will help establish a calm tone for the lesson. The attention signal should be used consistently whenever there is a need to get the cadets' attention. The following attention signals may be used:

- **Raising a hand.** The instructor can simply raise their hand or raise their hand and say, "high five." Immediately upon hearing the phrase "high five" and seeing the instructor's hand go up the cadets should stop talking or moving, look at the instructor, raise their hand and repeat the phrase "high five" and keep their hand raised until the group is ready.
- **Flicking the light switch.** Immediately upon seeing the lights go on and off, the cadets should stop talking or moving and look at the instructor until the group is ready. An accompanying verbal command may include "high five" or some other phrase.
- **Sounding a bell, playing a musical tone or playing part of a song.** Immediately upon hearing the bell, musical tone or part of a song, the cadets should stop talking or moving and look at the instructor until the group is ready.
- **Clapping a rhythm.** The instructor claps a rhythm (dut, dut, dut, dut, dut). Immediately upon hearing the clapped rhythm the cadets should stop talking or moving, clap either a responding rhythm (dut, dut) or repeat the rhythm the instructor clapped and then look at the instructor until the group is ready.
- **Whistling.** Immediately upon hearing the whistle the cadets should to stop talking or moving and look at the instructor until the group is ready.



Use one of the attention signals and have the cadets respond with the appropriate behaviour or play the chorus from the song "Respect", have the cadets repeat "R-E-S-P-E-C-T" when they hear it and look at the instructor until the group is ready.



This is not an exhaustive list of attention signals. Some of the signals described above may be too childish for some groups. When deciding on a signal, consider the age, experience and maturity level of the group. Additional research of attention signals and experimenting with the group may help find one that works.

## CORRECTING BEHAVIOUR

Instructors must be able to resolve disagreements, draw attention to the merits of differing opinions and maintain control of the classroom. They should prepare ahead of time and have a contingency plan for a range of behaviours similar to those listed below:

LEARNER BEHAVIOUR	SOLUTIONS
<p><b>Quick Learner</b></p> <p>The cadet who consistently grasps concepts quickly and finishes work first could become disruptive if they begin to feel bored and unchallenged.</p>	<p>Provide this cadet with more advanced work.</p> <p>Ask this cadet to help others who require help.</p> <p>Have extra work prepared that reinforces the lesson.</p>
<p><b>Quiet Learner</b></p> <p>The cadet who rarely participates because they are shy, afraid, self-conscious or introverted.</p>	<p>Determine the cadet's interest and make it a topic for a group discussion. Discreetly encourage them to speak on the topic during the discussion asking questions that require short answers but occasionally ask more detailed questions.</p>
<p><b>Helpful Learner</b></p> <p>The cadet who is eager to help and agrees with everything the instructor says.</p>	<p>If the cadet is truly a generous person, explain in private that their behaviour is appreciated but could be misinterpreted by the group.</p> <p>If the cadet is trying to gain the favour of the instructor, advise the whole group that only merit will be rewarded.</p>
<p><b>Monopolizer</b></p> <p>The cadet who is always ready to express their views and can end up monopolizing the lesson.</p>	<p>Pose questions to this cadet that require only brief "yes" or "no" answers.</p>
<p><b>Critical Learner</b></p> <p>The cadet who consistently finds fault with the content or method of instruction.</p>	<p>Listen to the cadet's problems and satisfy them, if possible. If not possible, admit there are areas to be improved and ask for suggestions and solutions. Advise the cadet that you would be happy to discuss these issues after the lesson.</p>
<p><b>Know It All</b></p> <p>The cadet who considers themselves an authority on any topic being discussed and disrupts the class.</p>	<p>Determine if the cadet is knowledgeable or simply trying to get attention. Allow the cadet to answer some questions but allow other cadets to respond as well.</p>
<p><b>Distracter</b></p> <p>The cadet who attempts to get the group off topic. The cadet may do this to avoid revealing that they have not completed the assigned work or to avoid a difficult subject.</p>	<p>Recognize the types of questions that appear to relate to the lesson but will actually veer off topic.</p> <p>Acknowledge that the question does not relate to the topic but offer to discuss it after the lesson.</p>



Organize the cadets into pairs and have them alternately describe to one another the different types of learners. Circulate around the room to get a sense of how well the cadets are processing the information. After all cadets have participated and the different types of learners have been described, continue with the lesson.

## PROVIDING POSITIVE REINFORCEMENT

Deal with inappropriate academic performance and / or behaviour by emphasizing what is expected of the cadet rather than concentrating on what the cadet did wrong. The feedback should be:

- accurate,
- age-appropriate,
- specific, and
- consistent with the instructor's personal style.

It is extremely frustrating for cadets to be advised that their performance is unsatisfactory but to not know why. Instructors must:

- specifically and clearly identify what aspect of a performance is incorrect; and
- specifically and clearly identify what the cadet must do differently.

The cadets should also be asked to identify their own mistakes and explain why they made the error. In addition, the cadets should also be given the opportunity to:

- explain how to perform the task correctly; and
- practice the correct procedure.

## ENGAGING THE CADET

Cadets are engaged when they are moving around or working in groups to manipulate information physically and mentally. Instructors can enhance learning by engaging in activities such as those described below.

**Jigsaw worksheets.** Instead of having cadets complete a worksheet individually, break them into small groups and assign a portion of the worksheet to each group. Each group must complete its assigned portion of the worksheet and use a poster or some other presentation aid to present the information to the whole group.

**Graphics.** Have the cadets create graphic organizers such as webs or mobiles to summarize information.

**Creative writing.** Have the cadets create rhymes, poems or songs to summarize information. If you are teaching terminology, symbols or similar information, have the cadets write a fairy tale or children's story using the information.

**Create a chart.** The instructor should type chronological information using a large font and cut it up into strips. Organize the cadets into pairs or small groups and give each pair or group an envelope with the strips of information and have them work together to place the information in the correct order and paste it on a sheet of chart paper or bristol board. Time the activity for fun.

**Information chain.** Have each cadet write one fact that they have learned during the class on a piece of coloured paper if possible. Have the class line up in front of the room and invite the first cadet to read their slip then fold it into a link and staple it. Invite the next student to read a fact and attach it to the chain and continue in this fashion until all cadets have created a link.

**Scavenger hunt.** Teach identification lessons such as parts of a rifle or parts of a tackle by planting clues around the room and having cadets engage in a scavenger hunt. The clues may be actual items or pictures of items. When cadets find an actual item or some representation of it, they must describe the item to the group.

**Road trip.** Create a road trip. Place stop signs around the room containing information describing what the cadet must do. The cadets will travel to each place, complete the activity and have their passport stamped.



Organize the cadets into pairs and have them alternately explain to one another the different ways instructors can engage cadets. Circulate around the room to get a sense of how well the cadets are processing the information. After all cadets have participated and all activities have been explained, continue with the lesson.

## MANAGING DISTRACTIONS

The best way for instructors to manage distractions is to prevent them from occurring by engaging the cadets in learning. Use attention signals to get the cadets' attention at the beginning of a lesson, while conducting an activity during a lesson and when transitioning from one activity to another. Instructors can prevent distractions by developing and consistently using routines that help cadets to predict the instructor's behaviour. Disruptions often occur when the cadets move from one activity to another during a lesson. Instructors should structure transitions by answering the following questions:

- Can the cadets talk during transitions?
- How can the cadets get the instructor's attention during a transition?
- What is the purpose of the transition?
- Can the cadets move during the transition?
- What is the desired behaviour during a transition?

Once a procedure has been established, the instructor should teach the cadets the structure through direct instruction and patient practice until the group responds appropriately. A possible approach to teaching transitions could include:

- calling the cadets to attention with the attention signal;
- numbering the cadets and assigning each number a specific task;
- informing the cadets of the rules regarding talking and moving around the room;
- informing the cadets of the procedure for getting the instructor's attention; and
- informing the cadets of the time permitted for the transition.



Instructors should encourage the cadets either individually or collectively when they may not expect it. Such encouragement may be particularly rewarding and will be considered genuine because it is attached to past behaviour and not necessarily designed to provoke further activity from the cadet.



---

**CONFIRMATION OF TEACHING POINT 3**

---

**QUESTIONS:**

- Q1. What is an attention signal?
- Q2. Identify one solution for dealing with cadets who get finished before others and become disruptive.
- Q3. Identify two questions instructors should answer to structure transitions.

**ANTICIPATED ANSWERS:**

- A1. An attention signal is a visual or auditory signal that immediately captures the cadets' attention when the instructor begins a class, gives instructions, passes on information or transitions from one activity to another.
- A2. Solutions include:
- providing the cadet with more advanced work;
  - asking the cadet to help others; or
  - having extra work prepared that reinforces the lesson.
- A3. Can the cadets talk during transitions?  
How can the cadets get the instructor's attention during a transition?  
What is the purpose of the transition?  
Can the cadets move during the transition?  
What is the desired behaviour during a transition?

---

**END OF LESSON CONFIRMATION**

---

Have the cadets complete the Create a Positive Learning Environment Crossword Puzzle located at Attachment B.

Review answers using the Create a Positive Learning Environment Crossword Puzzle Answer Key located at Attachment C.

---

**CONCLUSION**

---

**HOMEWORK / READING / PRACTICE**

Nil.

**METHOD OF EVALUATION**

This EO is assessed IAW A-CR-CCP-604/PG-001, *Phase Four Qualification Standard and Plan*, Chapter 3, Annex B, 409 PC.

**CLOSING STATEMENT**

Creating a positive learning environment requires planning and work by instructors. A safe, respectful and positive learning environment is more than a boost to self-confidence and self-esteem or a way to make learning fun—it is the cadet's right and an excellent way to make them want to learn.

## INSTRUCTOR NOTES / REMARKS

Nil.

---

## REFERENCES

---

A0-055 A-P9-050-000/PT-006 Director Training and Education Policy. (2002). *Canadian Forces individual training and education system* (Vol. 6). Ottawa, ON: Department of National Defence.

A0-118 Director Cadets 3. (2007). *Youth reference guide*. Ottawa, ON: Department of National Defence.

C0-191 ISBN 978-0-7360-6675-4 Corbin, C. & Lindsey, R. (2007). *Fitness for life: Updated fifth edition*. Windsor: Human Kinetics.

C0-375 ISBN 978-1-879097-10-0 Kagan, S., & Kagan, M. (2009). *Kagan cooperative learning*. San Clemente, CA: Kagan Publishing.

C0-376 ISBN 0-7619-4626-8 Earl, L. M. (2003). *Assessment as learning*. Thousand Oaks, CA: Corwin Press, Inc.

C0-380 Scott, E. (2008). *Cortisol and stress: How to stay healthy*. Retrieved February 25, 2009, from <http://www.Stress.about.com/od/stresshealth/a/cortisol.htm?p=1>

C0-381 McDonald, E. (2006). *How to involve and engage students*. Retrieved March 4, 2009, from [http://www.education-world.com/a\\_curr/columnists/mcdonald/mcdonald007.shtml](http://www.education-world.com/a_curr/columnists/mcdonald/mcdonald007.shtml)

C0-382 Bear, T. C. (2009). *Quiet signals for getting attention and control of your classroom*. Retrieved February 27, 2009, from <http://www.teachercreated.com/blog/?tag=attention-signals>

C0-383 Bell, A. (2007). *Creating a learning centered environment–Introduction*. Retrieved February 23, 2009, from <http://www.dialogueonlearning.tc3.edu/model/environment/Introduction-grp.htm>

C0-384 Handy, K. (2009). *Classroom management plan*. Retrieved February 27, 2009, from <http://www.katiehandy.wordpress.com/classroom-management-plan/>

C0-385 Boudreau, D. (2008). *Creating the ideal learning environment–Emotional*. Retrieved February 25, 2009, from <http://ezinearticles.com/?Creating-the-Ideal-Learning-Environment---Emotional&id=1536435>

## RELAXATION EXERCISES

### Rag Doll

1. Sit in a chair (or stand) with feet apart.
2. Stretch the arms and trunk upward and inhale.
3. Exhale and drop the body forward. Let the trunk, head and arms dangle between the legs, keeping the muscles relaxed (as illustrated in Figure 1).
4. Remain in this position for 10–15 seconds.
5. Slowly roll up, one vertebrae at a time.



*Note. From Fitness for Life: Updated Fifth Edition (p. 300), by C. Corbin, & R. Lindsey, 2007, Windsor, ON: Human Kinetics. Copyright 2007 by The Cooper Institute.*

Figure A-1 Rag Doll

### Neck Roll

1. Sit in a chair or on the floor with legs crossed.
2. Keeping the head and chin tucked, inhale and slowly turn the head as far left as possible (as illustrated in Figure 2).
3. Exhale and turn the head to the centre.
4. Repeat steps 2–3 for the right side.
5. Repeat steps 2–4 three times, trying to turn further each time to feel the stretch in the neck.
6. Drop the chin to the chest and inhale while slowly rolling the head in a semicircle to the left shoulder and exhale while slowly rolling the head back to the centre.
7. Repeat step 6 for the right side.



Do not roll the head backward or in a full circle.



*Note. From Fitness for Life: Updated Fifth Edition (p. 300), by C. Corbin, & R. Lindsey, 2007, Windsor, ON: Human Kinetics. Copyright 2007 by The Cooper Institute.*

Figure A-2 Neck Roll

### Body Board

1. Lie on the right side with arms over the head (as illustrated in Figure 3).
2. Inhale and stiffen the body like a wooden board.
3. Exhale and relax the muscles and collapse.
4. Let the body fall without trying to control the direction (as illustrated in Figure 4).
5. Lie still for ten seconds.
6. Repeat steps 1–5 for the left side.



*Note. From Fitness for Life: Updated Fifth Edition (p. 301), by C. Corbin, & R. Lindsey, 2007, Windsor, ON: Human Kinetics. Copyright 2007 by The Cooper Institute.*

Figure A-3 Body Board Start Position



*Note. From Fitness for Life: Updated Fifth Edition (p. 301), by C. Corbin, & R. Lindsey, 2007, Windsor, ON: Human Kinetics. Copyright 2007 by The Cooper Institute.*

Figure A-4 Body Board Finish Position

### Jaw Stretch

1. Sit in a chair or on the floor with head up and arms and shoulders relaxed.
2. Open mouth as wide as possible and inhale.
3. Relax and exhale slowly.
4. Shift the jaw to the right as far as possible and hold for three seconds (as illustrated in Figure 5).
5. Repeat step 4 for the left side.
6. Repeat steps 4–5 ten times.

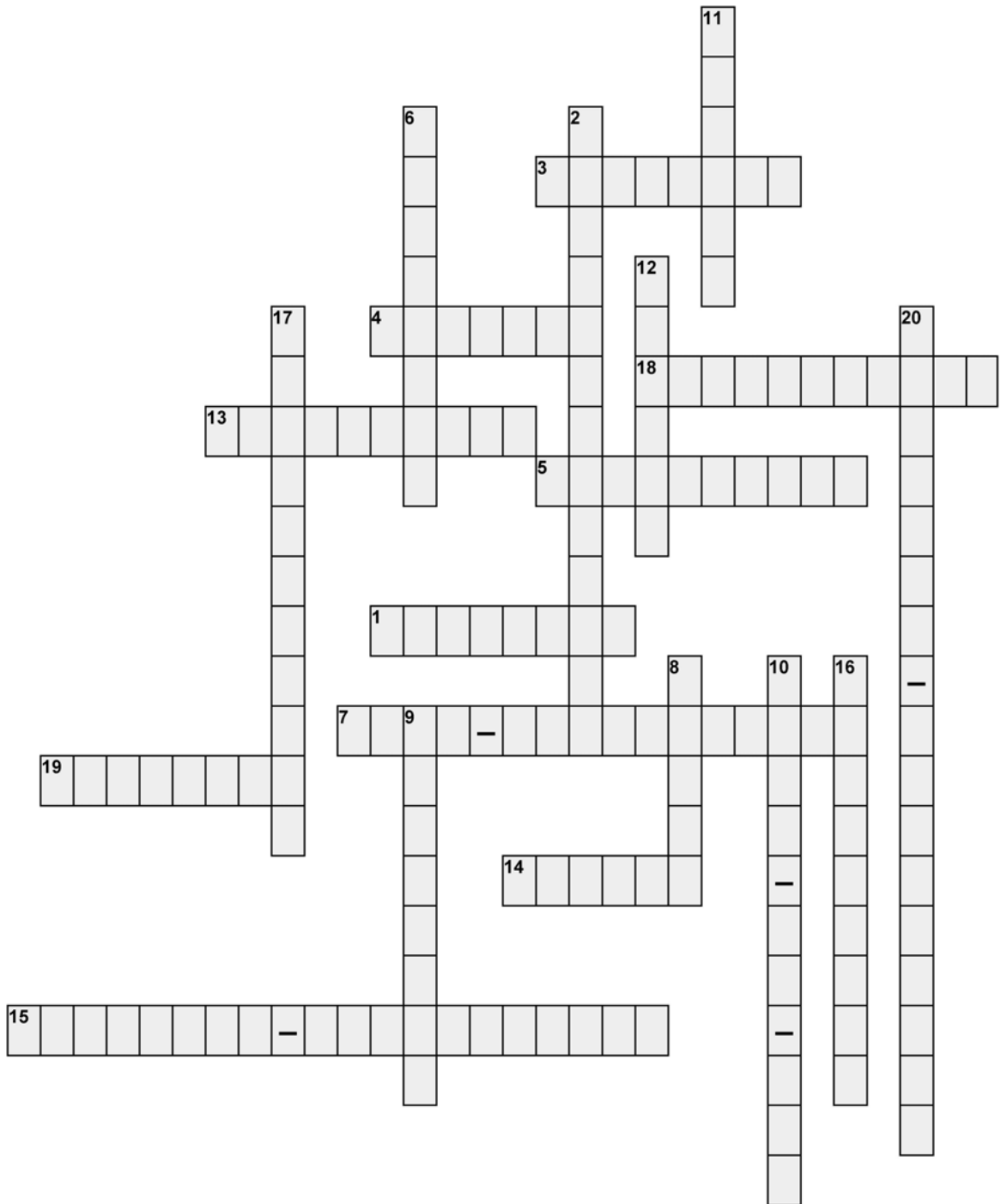


*Note. From Fitness for Life: Updated Fifth Edition (p. 301), by C. Corbin, & R. Lindsey, 2007, Windsor, ON: Human Kinetics. Copyright 2007 by The Cooper Institute.*

Figure A-5 Jaw Stretch

THIS PAGE INTENTIONALLY LEFT BLANK

### CREATE A POSITIVE LEARNING ENVIRONMENT CROSSWORD PUZZLE



#### Word List

physical environment, relaxation, movement, brain, stress, relaxed alertness, memorable, past performance, predict, processing, eustress, distress, cortisol, visual, know it all, specific, self-esteem, quiet learner, emotionally, oxygen

**Clues**

**Across:**

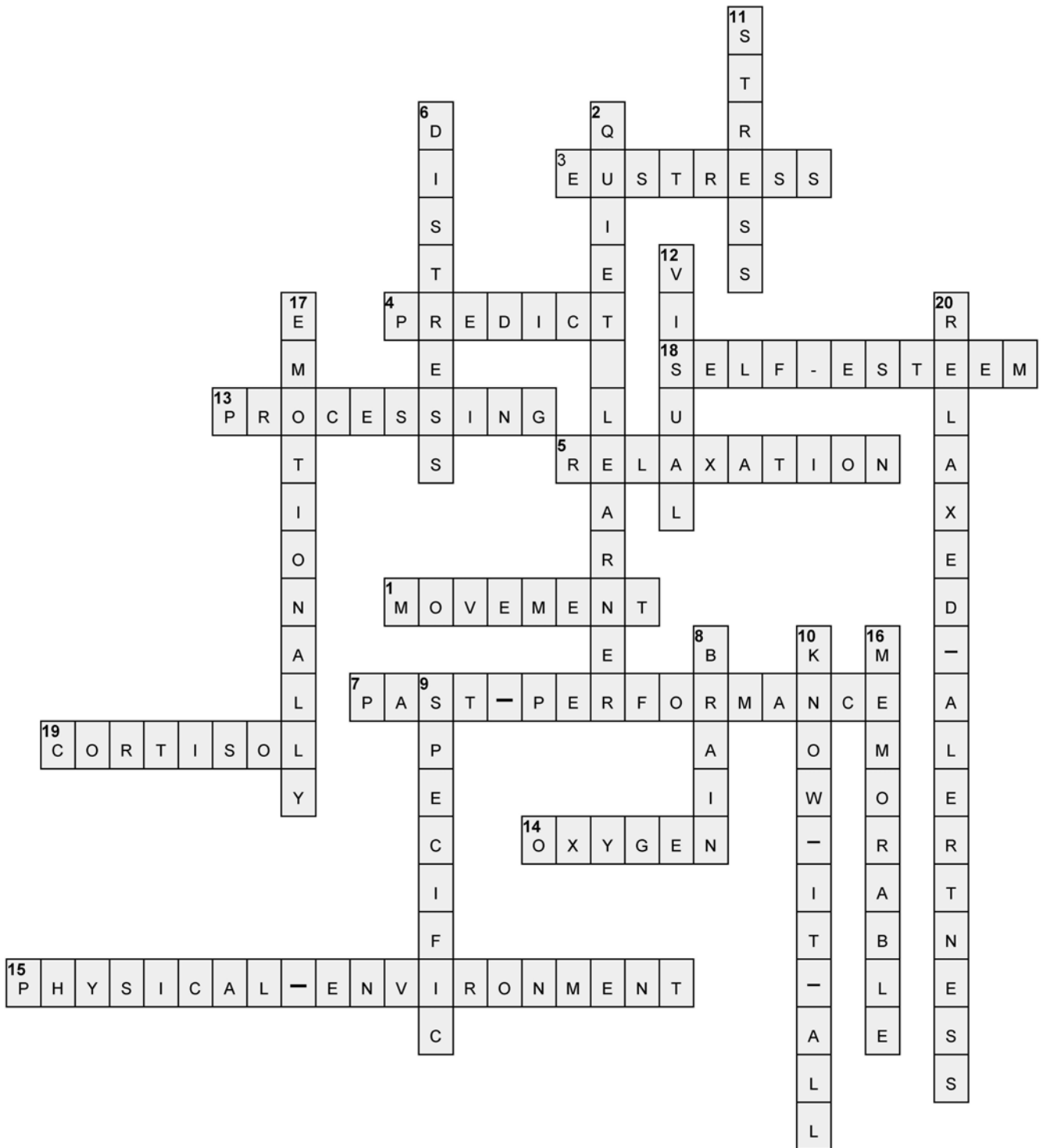
1. Furniture should be arranged to allow for \_\_\_\_\_.
3. Positive stress is called \_\_\_\_\_.
4. Using consistent routines will help cadets \_\_\_\_\_ instructor behaviour.
5. Cooler temperatures lead to this \_\_\_\_\_.
7. Feedback should help cadets compare current progress with \_\_\_\_\_.
13. Moving information from working memory to long term memory is called \_\_\_\_\_ information.
14. Deep breathing helps get \_\_\_\_\_ into the blood stream.
15. The place where a lesson takes place is \_\_\_\_\_.
18. Reinforcement boosts learning but encouragement boosts \_\_\_\_\_.
19. Music and movement help the body to produce \_\_\_\_\_.

**Down:**

2. The cadet who rarely participates is called a \_\_\_\_\_.
6. Negative stress is called \_\_\_\_\_.
8. 20% of the body's energy is consumed by the \_\_\_\_\_.
9. Feedback should be accurate, age-appropriate, consistent and \_\_\_\_\_.
10. Cadets who think they are authorities on any topic are called \_\_\_\_\_.
11. Fight or flight is the body's response to \_\_\_\_\_.
12. Attention signals should be both auditory and \_\_\_\_\_.
16. When our senses are stimulated the learning experience will become more \_\_\_\_\_.
17. When cadets feel comfortable and relaxed the environment is said to be \_\_\_\_\_ safe.
20. To maximize learning the emotional environment should create \_\_\_\_\_.



### CREATE A POSITIVE LEARNING ENVIRONMENT ANSWER KEY



## CREATE A POSITIVE LEARNING ENVIRONMENT ANSWER KEY (CONT'D)

### Clues

#### Across:

1. Furniture should be arranged to allow for \_\_\_\_\_. (MOVEMENT)
3. Positive stress is called \_\_\_\_\_. (EUSTRESS)
4. Using consistent routines will help cadets \_\_\_\_\_ instructor behaviour. (PREDICT)
5. Cooler temperatures lead to this \_\_\_\_\_. (RELAXATION)
7. Feedback should help cadets compare current progress with \_\_\_\_\_. (PAST PERFORMANCE)
13. Moving information from working memory to long term memory is called \_\_\_\_\_. (INFORMATION PROCESSING)
14. Deep breathing helps get \_\_\_\_\_ into the blood stream. (OXYGEN)
15. The place where a lesson takes place is \_\_\_\_\_. (PHYSICAL ENVIRONMENT)
18. Reinforcement boosts learning but encouragement boosts \_\_\_\_\_. (SELF-ESTEEM)
19. Music and movement help the body to produce \_\_\_\_\_. (CORTISOL)

#### Down:

2. The cadet who rarely participates is called a \_\_\_\_\_. (QUIET LEARNER)
6. Negative stress is called \_\_\_\_\_. (DISTRESS)
8. 20% of the body's energy is consumed by the \_\_\_\_\_. (BRAIN)
9. Feedback should be accurate, age-appropriate, consistent and \_\_\_\_\_. (SPECIFIC)
10. Cadets who think they are authorities on any topic are called \_\_\_\_\_. (KNOW IT ALL)
11. Fight or flight is the body's response to \_\_\_\_\_. (STRESS)
12. Attention signals should be both auditory and \_\_\_\_\_. (VISUAL)
16. When our senses are stimulated the learning experience will become more \_\_\_\_\_. (MEMORABLE)
17. When cadets feel comfortable and relaxed the environment is said to be \_\_\_\_\_ safe. (EMOTIONALLY)
20. To maximize learning the emotional environment should create \_\_\_\_\_. (RELAXED ALERTNESS)



**COMMON TRAINING**  
**PHASE FOUR**  
**INSTRUCTIONAL GUIDE**



**SECTION 3**

**EO M409.03 – DESCRIBE LEARNER NEEDS**

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-604/PG-001, *Phase 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.

Create slides of Attachments A and H.

Photocopy and three-hole punch Attachments B, D, E, F, I and K for each cadet.

Photocopy Attachment C and cut into strips.

Make two copies of Attachments J and L.

Ensure that the cadets bring the binder provided in EO M409.01 (Identify Methods of Instruction).

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

An interactive lecture was chosen for TPs 1 and 2 to introduce, provoke thought and stimulate the cadet's interest in learner needs.

An in-class activity was chosen for TPs 3 and 4 as it is an interactive way to provoke thought and stimulate interest in the different types of learners and how to meet their needs.

---

**INTRODUCTION**

---

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadets shall have described how developmental periods and learning styles determine learner needs.

**IMPORTANCE**

Instructors must develop an appreciation for all learning styles in order to meet learner needs. Being aware of developmental periods will provide instructors with the necessary tools to plan relevant and meaningful lessons.

---

**Teaching Point 1****Describe the importance of making material relevant and meaningful, and providing information processing time.**

Time: 5 min

Method: Interactive Lecture

---



Display the slide of Tiger Comic located at Attachment A to focus the cadets' thoughts toward the learning process.

Learning is a complex process. There are many theories about how learning occurs. Determining what is relevant is the first step to ensure that the learning is meaningful. Understanding the age appropriate learning categories provides some insight into how the brain is working to process information.

**RELEVANT LEARNING**

**Relevant.** Determining why and if the material is necessary to know. Once this is determined the learner decides whether or not they engage in committing the information to memory.



Albert Einstein said, "Everything should be made as simple as possible, but not simpler."

In other words, teach to the level of the cadets. The level of difficulty determines whether or not the cadets engage in the lesson. Essentially, less is more when it comes to new material.

**MEANINGFUL LEARNING**

Providing meaningful and relevant material results in greater overall retention.

Learning becomes meaningful when cadets understand material and store it in the brain. A learning experience is meaningful when the learners engage in three processes:

1. reflecting upon prior knowledge;
2. relating to real-life experiences; and
3. applying knowledge in future experiences.

Retention is the ability to remember material after the material is presented. The more information is repeated, the better the retention.



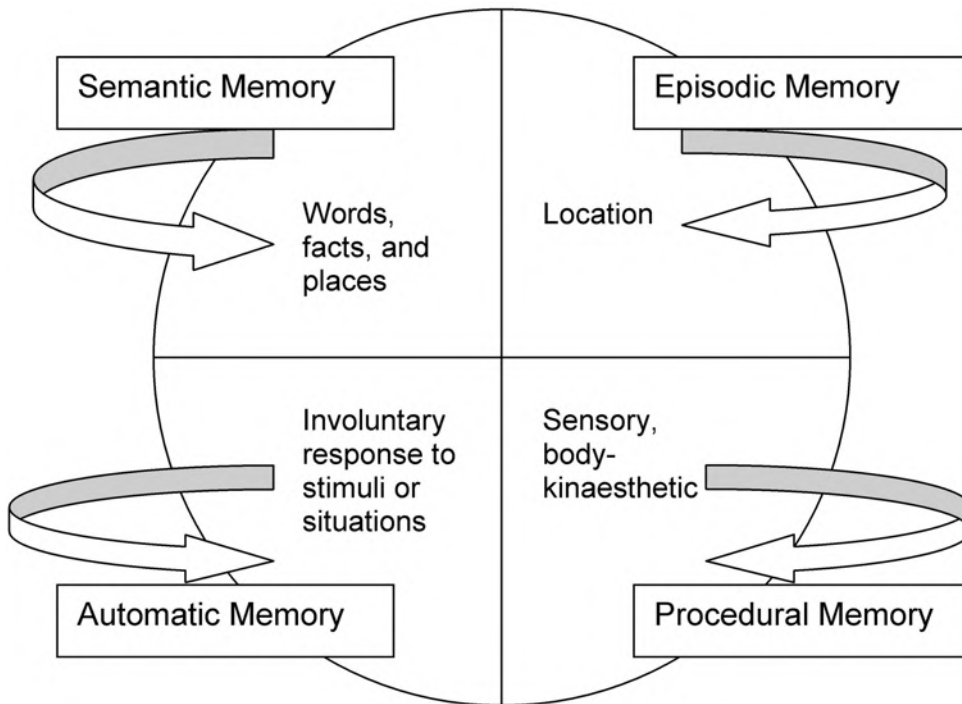
Display the following on flip chart paper / white board.

Learners retain:

- 10% of what they read,
- 26% of what they hear,
- 30% of what they see,
- 50% of what they see and hear,
- 70% of what they say, and
- 90% of what they say and do.

Information is stored in different places in the brain depending on the type of information. Emotions have a great influence on learning. The stronger the emotions connected with an experience, the stronger the memory.

Various types of information are associated with a specific type of memory (as illustrated in Figure 1).



*Note: Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 1 Types of Memory

## PROCESSING TIME

**Attention span.** The average attention span is about one minute per year of age to a maximum of 15 years.

Allowing time for cadets to apply their learning is important so they can move information from their working memory to their long-term memory. The processing time is known as "thinking about thinking", where cadets can reflect on the lesson and plan, monitor, and evaluate their own thinking and learning.



Distribute the Learning Pyramid located at Attachment B to show the relationship between learning and remembering.

---

### CONFIRMATION OF TEACHING POINT 1

---

#### QUESTIONS:

- Q1. What does relevant mean?
- Q2. What three processes involve the learner to have a meaningful learning experience?
- Q3. What is retention? How is it increased?

#### ANTICIPATED ANSWERS:

- A1. Determining why and if the material is necessary to know. Once this is determined the learner will decide whether or not they will engage in actually committing the information to memory.
- A2. The learner actively:
- (a) reflects upon prior knowledge;
  - (b) relates to real-life experiences; and
  - (c) applies knowledge in future experiences.
- A3. Retention is the ability to remember material after it is presented. The more information is repeated, the better the retention.

---

#### Teaching Point 2

**Describe and identify the needs of the developmental periods (DP).**

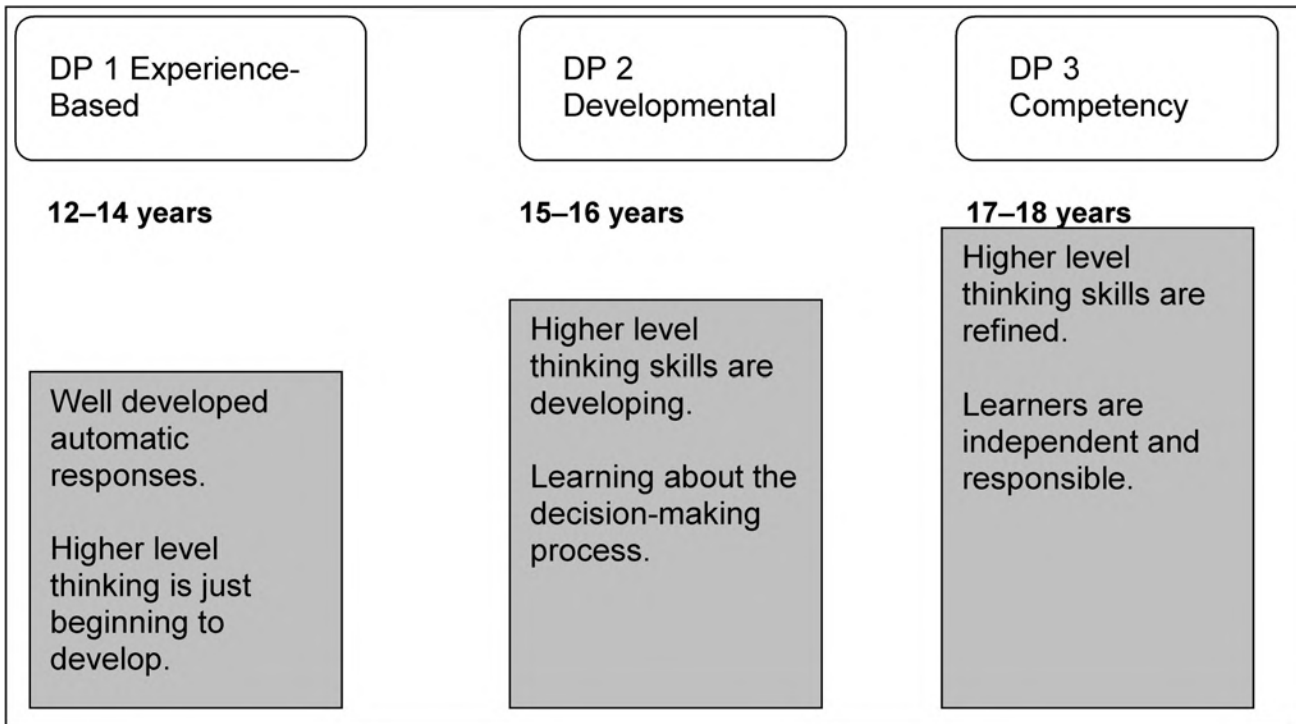
Time: 10 min

Method: Interactive Lecture

---

#### DESCRIBE DEVELOPMENTAL PERIODS (DP)

The mental, physical, emotional and social development of a cadet are considered when determining a DP. They are age-based and focus on refining higher-level thinking skills such as reasoning, reflective thinking, and problem solving. The three are also known as age-appropriate learning categories (as illustrated in Figure 2).



*Note: Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 2 Identifying DPs

An instructor must plan their lessons based on the DP of the cadets. When planning a lesson it is important to consider what type of activities and questions to ask. For example, each DP indicates how long an activity should last:

- **DP 1.** Activities in a lesson should end in that same lesson.
- **DP 2.** Activities started in a lesson may extend over two to three lessons.
- **DP 3.** Activities started in a lesson may extend over four or more lessons.

#### NEEDS OF DPS



The following information focuses on DPs 1 and 2 only since the cadets will not be planning lessons for cadets in DP 3.

Experienced-based DP 1 (12–14 years):

- understand what is concrete / real not abstract;
- have mastered reflexive responses;
- require close supervision;
- want interaction and activity in lessons; and
- are very "me" oriented.



Developmental DP 2 (15–16 years):

- in a transition period—moving from understanding the concrete to understanding the abstract;
- beginning to use higher level thinking skills and are comfortable with the concrete;
- want to practice and explore new thinking skills;
- begin to understand cause and effect relationships;
- concerned with fairness—value system kicks in—need for equality for all; and
- asking questions like "how do I fit in?" and "how does this affect me?"

Four areas to consider when teaching within these DPs are:

- active and interactive lessons,
- structured activities,
- the opportunity for choice within the lesson, and
- goals definition.

Each area varies from low to high depending on the age and DP. However, active and interactive lessons are emphasized in all three DPs.

Lessons are planned by incorporating criteria based on the DPs (as illustrated in Figure 3).

Criteria for Activities	Experience-Based	Developmental	Competency
Active and Interactive	yes	yes	yes
Structured	very	some	cadet-run and supervised by officers
Provide Choice	minimal	some	much
Goals	clear and concrete	clear	abstract

*Note: Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 3 Needs for Developmental Periods

---

### ACTIVITY

Time: 5 min

---

#### OBJECTIVE

The objective of this activity is to have the cadets describe and identify the DPs.

#### RESOURCES

Developmental Periods Confirmation strips located at Attachment C.

#### ACTIVITY LAYOUT

Nil.

#### ACTIVITY INSTRUCTIONS

1. Distribute the strips of paper from Attachment C to the cadets.



There are only 10 strips. If there are more than 10 cadets they may work in pairs / groups. If there are less than 10 cadets, some cadets may have more than one strip.

2. Ask the cadets who have a DP to come forward and tape their strip on the board.
3. Ask each cadet to read each strip to the class and decide what DP it describes. If the cadet is having difficulty, other cadets may help.
4. Once a decision has been made, tape the strip under the respective category.

---

### CONFIRMATION OF TEACHING POINT 2

---

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

---

### Teaching Point 3

**Conduct an activity where the cadets will describe and identify the needs of the different learning styles.**

Time: 20 min

Method: In-Class Activity

---

### ACTIVITY

---

#### OBJECTIVE

The objective of this activity is to have the cadets describe and identify the needs of learners.

#### RESOURCES

- Learning Styles Information Sheet located at Attachment D,
- Learning Styles Survey located at Attachment E,
- How to Make a Jumping Frog located at Attachment F,
- How to Make a Triangular Box located at Attachment G,
- Slide of *Schoolies* comic located at Attachment H,
- Letter size paper for each cadet,
- Square sized sticky notes (eg, size 3 inches by 3 inches), and
- Sticky notes—4 inches by 6 inches.



In this lesson, sticky notes are used instead of origami paper (which is optimal). However, if sticky notes are not available, cut any paper according to the sizes recommended above.

#### ACTIVITY LAYOUT

Nil.

## ACTIVITY INSTRUCTIONS

1. Distribute the Learning Styles Information Sheet located at Attachment D. Read through the handout together.
2. Distribute the Learning Style Survey located at Attachment E. Have the cadets read each question and choose the most appropriate answer. Once they have answered all questions, have the cadets total each letter to determine their individual learning style.
3. Designate three areas of the classroom to represent each learning style: visual, kinaesthetic, and auditory. Have the cadets move to the group that reflects their learning style as indicated in the survey.



The groups should be uneven. Compare class results with the distribution of learning style percentage as indicated in the Learning Styles Information Sheet located at Attachment D.

4. Have the cadets return to their seats.
5. Distribute a piece of letter size paper, three square sticky notes, and one 4 inch by 6 inch sticky note to each cadet.



The activities are intended to allow the cadets to experience difficulty while using each one of the learning styles. Emphasis is on the cadets experiencing each learning style and not the completion of each activity. It is not important for the cadets to complete each activity, since they are for initial experiences only. Allot 2–3 minutes for each activity.

6. Have the cadets experience the auditory learning style by:
  - (a) listening to the directions to make a paper object;
  - (b) performing the direction as it is said; and
  - (c) refraining from asking questions as the directions are being given.



For this activity, have the cadets use the letter size paper. Read the following directions aloud to the cadets on how to make a paper boat:

1. Fold a piece of paper in half, from top to bottom.
2. Fold the right corner into the middle of the paper.
3. Fold the left corner into the middle of the paper.
4. Fold the bottom of the paper up against both sides.
5. Insert thumbs into the bottom to make a square.
6. Fold the bottom corners over each other to create a triangle.
7. Insert thumbs into the bottom to make a square.
8. Hold the paper with flaps down.
9. Fold the corners to the top point.

10. Pull the middle out to form a square.
11. Pull the two triangles at the top apart to create a boat.



For the next activity, have the cadets use the 4 inch by 6 inch sticky notes. Distribute How to Make a Jumping Frog located at Attachment F to each cadet.

7. Have the cadets experience the visual learning style by:
  - (a) seeing pictures to make a jumping frog;
  - (b) reading the directions to make a jumping frog; and
  - (c) performing the task without assistance.



For the next activity, have the cadets use the square sticky note. Use How to Make a Triangular Box located at Attachment G and demonstrate each step so the cadets can see.

8. Have the cadets experience the kinaesthetic learning style by:
  - (a) watching the instructor make a triangle box without verbal or written directions, and
  - (b) performing the task without assistance.
9. Discuss the cadets' feelings towards each of the learning styles by provoking these thoughts:
  - (a) What learning style was dominant in each of the activities?
  - (b) What task was most difficult?
  - (c) What task was the easiest?



Display the slide of *Schoolies* comic located at Attachment H.

---

### CONFIRMATION OF TEACHING POINT 3

---

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

**Teaching Point 4**

**Conduct an activity where the cadets will identify how to structure a lesson to meet the needs of the different types of learners.**

Time: 15 min

Method: In-Class Activity

---

**ACTIVITY**


---

**OBJECTIVE**

The objective of this activity is to have the cadets identify how to structure a lesson to meet the needs of types of learners.

**RESOURCES**

- Instructor Tips for Learning Styles worksheet located at Attachment I,
- Instructor Tips for Learning Styles Answer Key located at Attachment J,
- Activities in Developmental Periods worksheet located at Attachment K,
- Activities in Developmental Periods Answer Key located at Attachment L,
- Flip chart paper,
- Stopwatch,
- Markers, and
- Pens / pencils.

**ACTIVITY LAYOUT**

Set up workstations by taping flip chart paper around the classroom.



The number of workstations can be determined by dividing the class number by two or four. For example, if the class size is small divide by two, and if it is large divide by four.

**ACTIVITY INSTRUCTIONS**

1. Divide the cadets into two groups by assigning each cadet a number: Number 1 or Number 2. Arrange the cadets so that each group is sitting on opposite sides of the classroom.
2. Distribute the Instructor Teaching Tips for Learning Styles worksheet located at Attachment I to the cadets in Group 1 and the Activities in Developmental Periods worksheet located at Attachment K to Group 2.
3. Have the cadets work in their groups to fill out their worksheets.



Allocate two minutes for the cadets to work on the worksheets. It is not important to fully complete the sheets.

4. Distribute the answer keys located at Attachments J and L to one cadet in each group.
5. Have the cadet with the answer key in the each group read out the correct answers while the other cadets mark their worksheets and fill in any missing answers.
6. Have the cadets pair up with a cadet from the other side of the classroom and move to one of the workstations.



When the class size is large, two pairs can be assigned to each work station.

7. Give the cadets 2–3 minutes to explain on the chart paper how a DP 1 lesson would be structured differently than a DP 2 lesson. The cadets may use ideas from the worksheets and handouts in the class.
8. Have each group discuss their ideas for 2–3 minutes.



Distribute the remaining copies of Attachments I and K to those cadets that did not receive them earlier in the activity.

## SAFETY

Nil.

---

### CONFIRMATION OF TEACHING POINT 4

---

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

---

### END OF LESSON CONFIRMATION

---

The cadets' participation in the in-class activities will serve as the confirmation of this lesson.

---

### CONCLUSION

---

## HOMEWORK / READING / PRACTICE

Nil.

## METHOD OF EVALUATION

This EO is assessed IAW A-CR-CCP-604/PG-001, *Phase Four Qualification Standard Plan*, Chapter 3, Annex B, 409 PC.

## CLOSING STATEMENT

Understanding what makes information relevant and meaningful is important when it comes to instructing. Defining learning styles and identifying developmental stages helps identify instructional strategies that will meet the learners' needs and ultimately provide them with a healthy and welcoming learning environment.

**INSTRUCTOR NOTES / REMARKS**

Nil.

---

**REFERENCES**

---

- A0-118 Director Cadets 3. (2007). *Youth reference guide*. Ottawa, ON: Department of National Defence.
- C0-397 Belding, S. (2004). *Stickiness: Skills retention and synthesis*. Retrieved March 23, 2009, from [http://www.airs.org/files/public/Making\\_Training\\_Stick.pdf](http://www.airs.org/files/public/Making_Training_Stick.pdf)
- C0-398 ISBN I-57517-344-1 Burke, K. (2000). *What to do with the kid who....* Arlington Heights, IL: Skylight Professional Development.

THIS PAGE INTENTIONALLY LEFT BLANK



TIGER COMIC



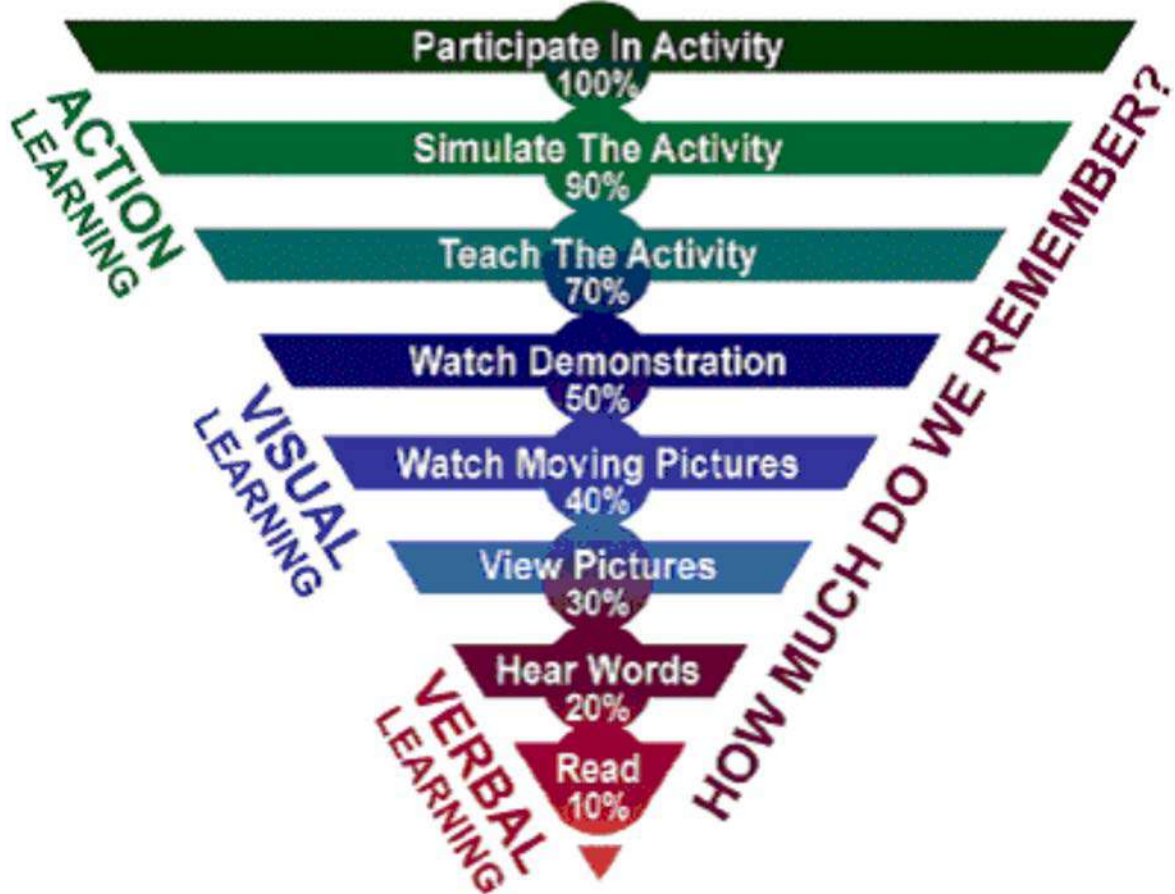
Note. From Tiger Comics by B. Blake. Retrieved March 10, 2009, from <http://www.kingfeatures.com/features/comics/tiger/about.html>

Figure A-1 Hide and Seek

THIS PAGE INTENTIONALLY LEFT BLANK

LEARNING PYRAMID

# HOW DO WE LEARN?



*Note. From Engage Educate Empower, 2007, Copyright by Life Adventure Centre 2009. Retrieved March 11, 2009, from <http://www.lifeadventurecenter.org>*

Figure B-1 Learning Pyramid

THIS PAGE INTENTIONALLY LEFT BLANK

**DEVELOPMENTAL PERIODS CONFIRMATION**

Cut out each strip and place in an envelope. Use page C-3 as a reference during the activity.

**12–14 years Experience-Based**

Effective learning experiences for cadets at this stage should be achievable, active and fun.

It is important to note that these cadets are just developing the area of the brain associated with higher level thinking skills.

Require close supervision.

Activities in the lesson should end in the same lesson.

## DEVELOPMENTAL PERIODS CONFIRMATION

Cut out each strip and place in an envelope. Use page C-3 as a reference during the activity.

### **15–16 years Developmental**

Cadets in this stage are ready to start learning about and practising reasoning and problem-solving skills.

Cadets want to practise and explore new thinking skills

Concerned with fairness; the value system kicks in where they need equality for all.

Cadets ask question like "how do I fit in?" and "how does this affect me?"

**DEVELOPMENTAL PERIODS CONFIRMATION ANSWER KEY**

**12–14 years Experience-Based**

Effective learning experiences for cadets at this stage should be achievable, active and fun.

It is important to note that these cadets are just developing the area of the brain associated with higher level thinking skills.

Require close supervision.

Activities in the lesson should end in the same lesson.

**15–16 years Developmental**

Cadets in this stage are ready to start learning about and practising reasoning and problem-solving skills.

Cadets want to practise and explore new thinking skills

Concerned with fairness; the value system kicks in where they need equality for all.

Cadets ask question like "how do I fit in?" and "how does this affect me?"

THIS PAGE INTENTIONALLY LEFT BLANK



### LEARNING STYLES INFORMATION SHEET

Understanding the different learning styles can help make a more effective instructor. For example, being aware of how cadets process information allows the instructor to design lessons and activities that present information in a variety of ways to address as many learning styles as possible. Learning occurs using the senses. The three learning styles use seeing, hearing and touching. Seeing corresponds to visual learners, hearing corresponds to auditory learners and touching corresponds to kinaesthetic learners.

<b>Visual Learners:</b> <ul style="list-style-type: none"> <li>• are described as readers and observers;</li> <li>• learn through seeing;</li> <li>• think in pictures;</li> <li>• benefit from and enjoy visual aids; and</li> <li>• are better at reading than listening.</li> </ul>	<b>Auditory Learners:</b> <ul style="list-style-type: none"> <li>• are described as listeners and talkers;</li> <li>• process information through their ears;</li> <li>• are good working in louder environments;</li> <li>• are great socialisers; and</li> <li>• need to ask questions to confirm learning.</li> </ul>	<b>Kinaesthetic Learners:</b> <ul style="list-style-type: none"> <li>• are described as doers;</li> <li>• learn through moving, touching and doing;</li> <li>• process information through their muscles; and</li> <li>• learn best when combining muscles with reading or talking.</li> </ul>
--	--	--

*Note. Adapted from Cadet Program Reference Guide. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure D-1 Learning Styles

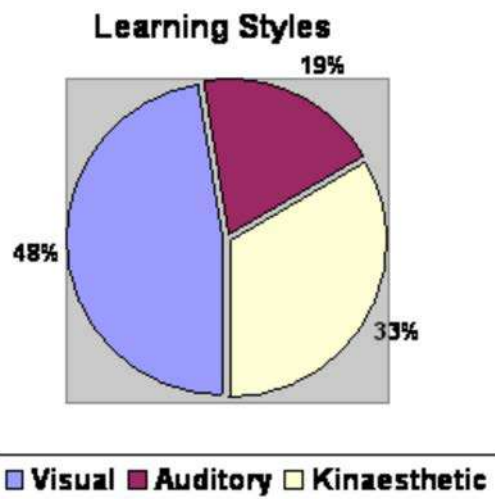
The differences between the three learning styles are illustrated in Figure D-2.

	<b>VISUAL</b>	<b>AUDITORY</b>	<b>KINAESTHETIC</b>
<b>Decision Making</b>	Create a chart of the possible alternatives; write out pros / con.	Talk over options with a friend.	Try out options—go with the path that seems best.
<b>Asking Directions</b>	Prefer a map / written directions.	Prefer verbal instructions.	Prefer to have someone take them the first time.
<b>Learning a New Skill</b>	Watch someone else do it, follow a diagram in a manual.	Attend a lecture; have someone talk them through the steps.	Try this and that until it works.

*Note. From Cognitive Preference. Retrieved March 10, 2009, from <http://www.georgebrown.ca/saffairs/stucuss/learningstyles.aspx>.*

Figure D-2 Learning Styles and Instructional Activities

To process information, a combination of the three senses are used, signifying that no learning style is completely independent. Each individual has a dominant learning style that represents how they process information most / how they learn best. Most of the population learn best by seeing and are therefore visual learners. When preparing a lesson, the instructor must keep in mind that it is best to provide multiple opportunities for all three styles of learning.



*Note. Adapted from Cadet Program Reference Guide. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure D-3 Dominant Learning Style

## LEARNING STYLES SURVEY

Directions. Select the answer that describes you best. There can only be one answer for each question. Once all the questions are answered, tally each of the letters, V, A and K to find your learning style.

**1. If I have to learn how to do something, I learn best when I:**

- (V) watch someone show me how.
- (A) hear someone tell me how.
- (K) try to do it myself.

**2. When I read, I often find that I:**

- (V) visualize what I am reading in my mind's eye.
- (A) read aloud or hear the words inside my head.
- (K) fidget and try to "feel" the content.

**3. When asked to give directions, I:**

- (V) see the actual places in my mind as I say them or prefer to draw them.
- (A) have no difficulty in giving them verbally.
- (K) have to point or move my body as I give them.

**4. If I am unsure how to spell a word, I:**

- (V) write it in order to determine if it looks right.
- (A) spell it out loud in order to determine if it sounds right.
- (K) write it in order to determine if it feels right.

**5. When I write, I:**

- (V) am concerned with how neat and well spaced my letters and words appear.
- (A) often say the letters and words to myself.
- (K) push hard on my pen or pencil and can feel the flow of the words or letters as I form them.

**6. If I had to remember a list of items, I would remember it best if I:**

- (V) wrote them down.
- (A) said them over and over to myself.
- (K) moved around and used my fingers to name each item.

**7. I prefer teachers who:**

- (V) use the board or overhead projector while they lecture.
- (A) talk with a lot of expression.
- (K) use hands-on activities.

**8. When trying to concentrate, I have a difficult time when:**

- (V) there is a lot of clutter or movement in the room.
- (A) there is a lot of noise in the room.
- (K) I have to sit still for any length of time.

**9. When solving a problem, I:**

- (V) write or draw diagrams to see it.
- (A) talk myself through it.
- (K) use my entire body or move objects to help me think.

**10. When given written instructions on how to build something, I:**

- (V) read them silently and try to visualize how the parts will fit together.
- (A) read them out loud and talk to myself as I put the parts together.
- (K) try to put the parts together first and read later.

**11. To keep occupied while waiting, I:**

- (V) look around, stare, or read.
- (A) talk or listen to others.
- (K) walk around, manipulate things with my hands, or move / shake my feet as I sit.

**12. If I had to verbally describe something to another person, I would:**

- (V) be brief because I do not like to talk at length.
- (A) go into great detail because I like to talk.
- (K) gesture and move around while talking.

**13. If someone were verbally describing something to me, I would:**

- (V) try to visualize what they were saying.
- (A) enjoy listening but want to interrupt and talk myself.
- (K) become bored if their description got too long and detailed.

**14. When trying to recall names, I remember:**

- (V) faces but forget names.
- (A) names but forget faces.
- (K) the situation that I met the person other than the person's name or face.

Scoring Instructions: Add the number of responses for each letter and enter the total below. The area with the highest number of responses is your primary style of learning.

Visual V = \_\_\_\_\_ Auditory A = \_\_\_\_\_ Kinaesthetic K = \_\_\_\_\_

*Note. From Learning Styles. Retrieved March 16, 2009, from <http://www.georgebrown.ca/saffairs/stusucc/learningstyles.aspx>*

Figure E-1 Survey

THIS PAGE INTENTIONALLY LEFT BLANK

## HOW TO MAKE A JUMPING FROG

1. Start with a rectangular sheet of paper, white side up. Fold it in half, and open out again.

2. Fold both top corners to the opposite edge of the paper. Your creases should look like this

3. Where the diagonal creases meet in the middle, fold the paper backwards, crease well and open.

4. Hold the paper at the sides, bring these points down to the centre line, then flatten. The creases should do most of the work here!

5. Fold the uppermost triangles up to the top point.

6. Fold sides in to the centre line.

7. Fold bottom corners upwards so the ends sit in the centre of the top diamond.

8. Now fold the same part downwards, in half.

9. Turn over and your frog is finished!  
 To make him jump, press down on his back as shown.

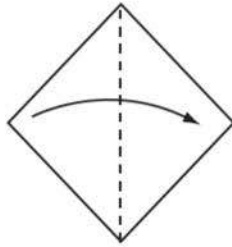
Note. From Origami-Fun. Retrieved March 10, 2009, from <http://www.origami-fun.com>

Figure F-1 Jumping Frog

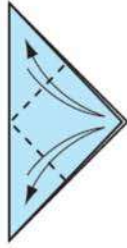
THIS PAGE INTENTIONALLY LEFT BLANK



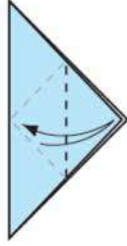
## HOW TO MAKE A TRIANGULAR BOX



1. Start with a square piece of paper, plain side up.  
 Fold the paper in half.



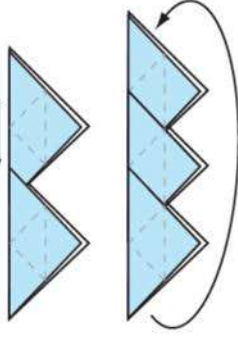
2. Fold the top corners toward the bottom point, then open to create these creases.



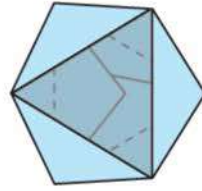
3. Fold both layers of the bottom point up to the top of the model, then open.



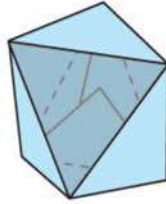
4. This is one completed unit. You need three. So make 2 more of these!



5. Insert one unit inside the other, then link the units all together.



Completed Triangular Box

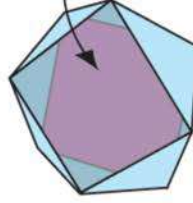


You can also make boxes with more than three units.

If you join four units together, you will have a lovely box with a square opening...

If you join 5 units together, you will have a box with a pentagon shaped opening.

Note: boxes with more than 3 units will need a bit of paper on the base as the units will not quite touch.



4 sided Triangle Box

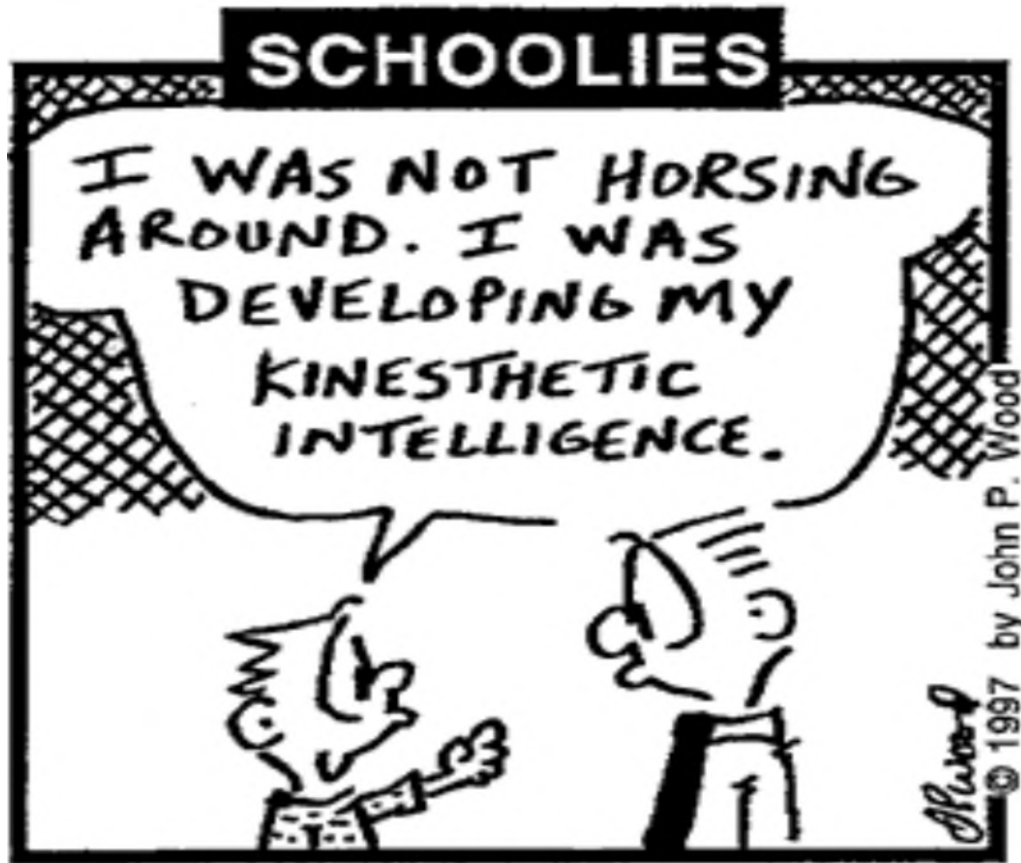
Cut out a square piece of paper to glue to the bottom of the box. This will cover up the hole and look neat!

The square should be the same size as the opening of the box, so measure the edges to get a perfect fit.

Note. From Origami-Fun. Retrieved March 10, 2009, from <http://www.origami-fun.com>

Figure G-1 Triangular Box

THIS PAGE INTENTIONALLY LEFT BLANK



*Note. From Schoolies, 1997, Copyright 1997 by J. Wood. Retrieved from <http://www.learninglaffs.com>*

Figure H-1 Kinesthetic Learning

THIS PAGE INTENTIONALLY LEFT BLANK

### INSTRUCTOR TIPS FOR LEARNING STYLES

Directions: Match each instructor tip with the correct learning style. Use V for Visual, A for Auditory, and K for Kinaesthetic.

1. \_\_\_\_\_ Allow cadets to sit where they can see clearly.
2. \_\_\_\_\_ Allow the cadets to get up and move.
3. \_\_\_\_\_ Use hands-on activities.
4. \_\_\_\_\_ Provide movement as part of the lesson.
5. \_\_\_\_\_ Buddy up to teach each other.
6. \_\_\_\_\_ Use items that can be handled and moved.
7. \_\_\_\_\_ Allow the cadets to sit where they can hear clearly.
8. \_\_\_\_\_ Read aloud written material.
9. \_\_\_\_\_ Keep visual aids in view long enough to be seen and referred back to.
10. \_\_\_\_\_ Use presentations, mutuels and speeches.
11. \_\_\_\_\_ Follow a written agenda and provide written material to be followed.
12. \_\_\_\_\_ Write out directions.
13. \_\_\_\_\_ Provide a space where they can read questions aloud to themselves before they write them down.
14. \_\_\_\_\_ Allow the cadets to do what is asked for, not to describe it.
15. \_\_\_\_\_ Provide discussion opportunities.
16. \_\_\_\_\_ Use rhymes, mnemonics and acronyms.
17. \_\_\_\_\_ Slow down and repeat when giving verbal information.
18. \_\_\_\_\_ Change pitch, tone and speed for emphasis.
19. \_\_\_\_\_ Avoid meaningless movement and decorations.
20. \_\_\_\_\_ Use posters, pictures, models, real items, and people.
21. \_\_\_\_\_ Have the cadets repeat things back.
22. \_\_\_\_\_ Use real items in context.
23. \_\_\_\_\_ Provide a space with few distractions.
24. \_\_\_\_\_ Allow matching or reorganizing rather than naming.
25. \_\_\_\_\_ Slow down, repeat and use only necessary words when asking verbal questions.
26. \_\_\_\_\_ Provide opportunity for written responses.
27. \_\_\_\_\_ Provide space to move around.
28. \_\_\_\_\_ Provide opportunity for verbal responses.
29. \_\_\_\_\_ Allow them to talk to themselves and whisper when they read.

THIS PAGE INTENTIONALLY LEFT BLANK

### INSTRUCTOR TIPS FOR LEARNING STYLES ANSWER KEY

Directions: Match each instructor tip with the correct learning style. Use V for Visual, A for Auditory, and K for Kinaesthetic.

1.   V   Allow cadets to sit where they can see clearly.
2.   K   Allow the cadets to get up and move.
3.   K   Use hands-on activities.
4.   K   Provide movement as part of the lesson.
5.   A   Buddy up to teach each other.
6.   K   Use items that can be handled and moved.
7.   A   Allow the cadets to sit where they can hear clearly.
8.   A   Read aloud written material.
9.   V   Keep visual aids in view long enough to be seen and referred back to.
10.   A   Use presentations, mutuels and speeches.
11.   V   Follow a written agenda and provide written material to be followed.
12.   V   Write out directions.
13.   A   Provide a space where they can read questions aloud to themselves before they write them down.
14.   K   Allow the cadets to do what is asked for, not to describe it.
15.   A   Provide discussion opportunities.
16.   A   Use rhymes, mnemonics and acronyms.
17.   V   Slow down and repeat when giving verbal information.
18.   A   Change pitch, tone and speed for emphasis.
19.   V   Avoid meaningless movement and decorations.
20.   V   Use posters, pictures, models, real items, and people.
21.   A   Have the cadets repeat things back.
22.   K   Use real items in context.
23.   V   Provide a space with few distractions.
24.   K   Allow matching or reorganizing rather than naming.
25.   V   Slow down, repeat and use only necessary words when asking verbal questions.
26.   A   Provide opportunity for written responses.
27.   K   Provide space to move around.
28.   A   Provide opportunity for verbal responses.
29.   A   Allow them to talk to themselves and whisper when they read.

THIS PAGE INTENTIONALLY LEFT BLANK



**ACTIVITIES IN DEVELOPMENTAL PERIODS**

Read each statement and determine what developmental period is being described. Draw an arrow to the correct column.

<b>Ages 12–14</b>	<b>Activity Description</b>	<b>Ages 15–16</b>
<b>DP 1 Experienced-Based</b>		<b>DP 2 Developmental</b>
	Clear / simple processes.	
	Provide reasons for the activity.	
	Provide some structure (eg, the instructor chooses the groups but leaves some choices to the group).	
	Closely supervised.	
	Semi-independent and less supervised.	
	Clear goals with some choice in process.	
	Very structured.	
	Lots of play.	
	Trial and error activities.	
	Clear and concrete goals (eg, one goal / one activity).	
	Provide reasons for the activity.	
	Will not require an instant result at the end of the first session. Can stretch the activity over 2–3 lessons.	
	Results oriented.	
	Formal, effective assessment is appropriate. Begin to develop skills in self assessment.	
	Assessment should focus on participation and observation.	
	Short learning sessions.	

THIS PAGE INTENTIONALLY LEFT BLANK

**ACTIVITIES IN DEVELOPMENTAL PERIODS ANSWER KEY**

Read each statement and determine what developmental period is being described. Draw an arrow to the correct column.

Ages 12–14	Activity Description	Ages 15–16
DP 1 Experienced-Based		DP 2 Developmental
←	Clear / simple processes.	
	Provide reasons for the activity.	→
	Provide some structure (eg, the instructor chooses the groups but leaves some choices to the group).	→
←	Closely supervised.	
	Semi-independent and less supervised.	→
	Clear goals with some choice in process.	→
←	Very structured.	
←	Lots of play.	
←	Trial and error activities.	
←	Clear and concrete goals (eg, one goal / one activity).	
	Provide reasons for the activity.	→
	Will not require an instant result at the end of the first session. Can stretch the activity over 2–3 lessons.	→
←	Results oriented.	
	Formal, effective assessment is appropriate. Begin to develop skills in self assessment.	→
←	Assessment should focus on participation and observation.	
←	Short learning sessions.	

THIS PAGE INTENTIONALLY LEFT BLANK



**COMMON TRAINING**  
**PHASE FOUR**  
**INSTRUCTIONAL GUIDE**



**SECTION 4**  
**EO M409.04 – EXPLAIN ASSESSMENT**

---

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-604/PG-001, *Phase 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.

**PRE-LESSON ASSIGNMENT**

Photocopy the Assessment of Learning Plan located at Attachment A for each cadet.

Photocopy the Assessment Instructions located at Attachment B for each cadet.

Photocopy the assessment instruments located at Attachments C, D and E for each cadet.

**APPROACH**

An interactive lecture was chosen for this lesson as a way to introduce the cadets to assessment types, instructions and instruments, provoke thought and stimulate interest among cadets.

---

**INTRODUCTION**

---

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall have explained assessment.

**IMPORTANCE**

It is important for cadets to know the different types of assessment and how to use assessment tools to create a positive learning environment. Varying the method of assessment is one way for instructors to create interest and encourage learning.

---

**Teaching Point 1****Explain types of assessment.**

Time: 10 min

Method: Interactive Lecture

---

**ASSESSMENT OF LEARNING**

Assessment of learning is the predominant type of assessment used following instruction / learning. It is a summative type of assessment that is used to report on progress made by cadets, usually by showing the instructor a cadet's relative position compared to other cadets. Assessment of learning usually takes the form of questions and answers compiled in a test or quiz. The questions are from the lesson that was taught and typically performed at the end of an instruction unit.

Tests are used to measure quantity and accuracy of student progress with little or no direction and advice for improvement. This type of testing shows which students are doing well and which are doing poorly. Although these testing techniques are simplistic, they can be a good indication of a cadet's mastery of skills and knowledge. They are not always a good indication of the ideas or concepts covered.

Within the Canadian Cadet Organization (CCO), assessment of learning takes place to determine whether learners have achieved Performance Objectives (PO) or critical Enabling Objectives (EO) (those deemed prerequisites for further training and education) and are used at the end of a phase of instruction. Every opportunity should be given to cadets to be successful in their assessment, even if multiple challenges are required.

**ASSESSMENT FOR LEARNING**

Assessment for learning is ongoing assessment used during instruction. It is a formative type of assessment and is used to create descriptions of the cadet's knowledge on the subject matter. These descriptions are used to determine if the instructor needs to review information and where the weak areas are in the lesson. This information can also be used to provide feedback to the cadet regarding their strengths and areas for improvement.

Assessment instruments used during assessment for learning include:

- worksheets,
- checklists,
- in-class activities, and
- questions and observations.

In assessment for learning, the instructor is the central character that will use the information obtained to design and develop the next stage of instruction.

Within the CCO, assessment for learning takes place during a phase of instruction and helps cadets and instructors recognize progress or lapses in learning. Through assessment for learning, the instructor can:

- identify when corrective or remedial action is required;
- plan the next steps in instruction;
- provide cadets with feedback so they can improve; and
- reinforce learning to aid the cadet in retaining information.

Assessment for learning may also include opportunities for cadets to practice using Performance Checks (PC) employed in assessment of learning.



A simple comparison of assessment types can be made as follows:

When a cook tastes the soup, that is formative (assessment for) and allows them to adjust spices to change the flavour to improve the taste; when the guests taste the soup, that is summative (assessment of) and allows them to make a judgement of the quality of the soup.

---

### CONFIRMATION OF TEACHING POINT 1

---

#### QUESTIONS:

- Q1. What type of assessment is assessment for learning?
- Q2. What does assessment for learning (formative) give the instructor the ability to do?
- Q3. Why does assessment of learning (summative) take place?

#### ANTICIPATED ANSWERS:

- A1. Formative.
- A2. Identify when corrective or remedial action is required, plan the next steps in instruction, provide cadets with feedback so they can improve, and reinforce learning to aid the cadet in retaining information.
- A3. To determine whether learners have achieved POs or critical EOs (those deemed prerequisites for further training and education).

---

#### Teaching Point 2

#### Describe assessment instructions and instruments.

Time: 15 min

Method: Interactive Lecture

Assessment for learning takes place throughout the learning process and guides the instructor in lesson planning; assessment of learning takes place upon completion of the learning phase. Chapter 3 of the Qualification Standard and Plan (QSP) outlines the assessment of learning plan and the assessment instruments to be used.



All attachments for this lesson are taken from A-CR-CCP-603/PG-001, *Phase Three Qualification Standard and Plan*, Chapter 3. Details of assessment are located in Chapter 3 of all QSPs.

#### CADET ASSESSMENT OF LEARNING PLAN



Distribute the Assessment of Learning Plan located at Attachment A to each cadet.

The Assessment of Learning Plan located at Chapter 3, Annex B of the QSP, provides an overall strategy for using assessment activities to determine if the cadet has met the requirements for qualification. The assessment of learning plan will:

1. provide an outline of each assessment of learning activity including its purpose, when it will occur and details the assessment instrument(s) used to support cadet evaluation;
2. identify the learning target(s) associated with the PO and / or EO being assessed, to include:
  - (a) **Knowledge Mastery.** The facts, concepts and theory a cadet needs to know;
  - (b) **Reasoning Proficiency.** A cadet uses what they know to solve a problem, make a decision, make a plan, think critically, set goals, or self-assess;
  - (c) **Skills.** Performance demonstration where the cadet demonstrates their ability to perform a skill. To be assessed, these performances must be demonstrated by the cadet and observed by an assessor;
  - (d) **Ability to Create Products.** A cadet uses their knowledge, reasoning and skills to create a concrete product; and / or
  - (e) **Attitudinal / Dispositional Changes.** A cadet's attitude about learning, safety, conduct, etc. Targets in this realm reflect attitude and feeling. They represent important affective goals we hold for a cadet as a by-product of their CP experience, and as such are not generally assessed for the purpose of attaining a qualification.
3. identify the assessment method(s) that best matches PO and / or EO learning targets, to include:
  - (a) **Selected Response.** A cadet selects the correct or best response from a list provided. Formats include multiple choice, true / false, matching, short answer, and fill-in-the-blank questions. Although short answer and fill-in-the-blank questions do require cadets to generate an answer, they call for a very brief answer that is counted as right or wrong, so these have been included in the selected response category;
  - (b) **Extended Written Response.** A cadet is required to construct a written answer in response to a question or task rather than select one from a list. An extended written response is one that is at least several sentences in length;
  - (c) **Performance Assessment.** This assessment method is based on observation and judgment; performance or product is observed and a determination is made as to its quality; and / or
  - (d) **Personal Communication.** Gathering information about a cadet through personal communication; learning is assessed through interpersonal interaction with the cadet.

## ASSESSMENT INSTRUMENTS

Specific assessment instruments are designed to support each assessment activity within the assessment of learning plan. These are meant to standardize assessment activities and cadet evaluation for all cadets attempting the qualification. Assessment instruments are located at the appendices to Chapter 3, Annex B of the QSP.



Distribute the Assessment Instructions located at Attachment B to each cadet.

Assessment instructions are provided to guide the instructor through the steps of the assessment to ensure consistent conduct of all assessments.





Using the Assessment Instructions handout, discuss with the cadets the information located in it, to include:

- preparation,
- conduct of assessment, and
- post-assessment instructions.



Distribute the assessment instruments located at Attachments C, D and E to each cadet. Discuss with the cadets how to use each of these assessment instruments.

Assessment is conducted to ascertain levels of learning. In most cases, these levels are defined in the Assessment Instructions. The most common assessment instruments used in the CCO are rubrics, individual checklists, and group checklists.

**Rubric.** A scoring tool that lists criteria to be considered for assessment. It is designed to guide the individual assessor's interpretation by providing a description of what should be observed for each level of proficiency and should be as clear and concise as practical.

**Checklists.** A simple checkbox type of worksheet that shows success in given tasks. Checklists can be designed to assess both individuals or groups.

---

## CONFIRMATION OF TEACHING POINT 2

---

### QUESTIONS:

- Q1. What does the Assessment of Learning Plan provide?
- Q2. What are the three parts of the Assessment Instructions?
- Q3. What is a rubric?

### ANTICIPATED ANSWERS:

- A1. An overall strategy for using assessment activities to determine if the cadet meets the requirements.
- A2. Preparation, conduct of assessment and post-assessment instructions.
- A3. A scoring tool that lists criteria to be considered for assessment. It is designed to guide the individual assessor's interpretation by providing a description of what should be observed for each level of proficiency and should be as clear and concise as practical.

---

## END OF LESSON CONFIRMATION

---

### QUESTIONS:

- Q1. Where in the QSP can information on assessment be found?
- Q2. When does assessment for learning (formative assessment) take place?
- Q3. What is the purpose of the Assessment Instructions?

**ANTICIPATED ANSWERS:**

- A1. In Chapter 3 of the QSP.
- A2. Ongoing throughout the lesson.
- A3. To guide the instructor through the steps of the assessment to ensure consistent conduct of all assessments.

---

**CONCLUSION**

---

**HOMEWORK / READING / PRACTICE**

Nil.

**METHOD OF EVALUATION**

This EO is assessed IAW A-CR-CCP-604/PG-001, *Phase Four Qualification Standard and Plan*, Chapter 3, Annex B, 409 PC.

**CLOSING STATEMENT**

Being familiar with assessment requirements will allow the instructor to be better prepared to meet the requirements of the lesson.

**INSTRUCTOR NOTES / REMARKS**

Nil.

---

**REFERENCES**

---

A0-124 A-CR-CCP-603/PG-001 Director Cadets 3. (2008). *Phase three qualification standard and plan*. Ottawa, ON: Department of National Defence.

C0-376 ISBN 0-7619-4626-8 Earl, L. (2003). *Assessment as learning*. Thousand Oaks, CA: Corwin Press, Inc.

ANNEX B

ASSESSMENT OF LEARNING PLAN – PHASE THREE

EC / PC	Scope	Purpose	Target	Method	How	When	Resources	Limitations
Nil.		<b>PO 301 – Recognize the Purpose of Service Groups Within Canada</b>						
Nil.		<b>PO 302 – Perform Community Service</b>						
303 PC	PO 303	The purpose of this PC is to assess the cadet's ability to perform the role of Team Leader.	Reasoning proficiency and Skills	Performance Assessment and Personal Communication	The cadet is observed performing the role of a Team Leader. The performance is then discussed with the cadet.	On completion of lessons related to EO M303.07 then ongoing throughout the training year.	Chapter 3, Annex B, Appendix 1	Nil.
Nil.		<b>PO 304 – Update Personal Activity Plan</b>						
Nil.		<b>PO 305 – Participate in Recreational Sports</b>						
Nil.		<b>PO 306 – Fire the Cadet Air Rifle During Recreational Marksmanship</b>						
Nil.		<b>PO 307 – Serve in a Sea Cadet Corps</b>						

EC / PC	Scope	Purpose	Target	Method	How	When	Resources	Limitations
<b>PO 308 – Direct a Squad Prior to a Parade</b>								
308 PC	PO 308	The purpose of this PC is to assess the cadet's ability to prepare a squad for a parade.	Skills	Performance Assessment	The cadet is observed as they prepare a squad for parade by: forming up, sizing, dressing, inspecting and calling the roll.	During preparation for corps opening and closing parades.	Chapter 3, Annex B, Appendix 2	Nil.
<b>PO 309 – Instruct a Lesson</b>								
309 PC	PO 309	The purpose of this PC is to assess the cadet's ability to instruct a lesson using a written lesson plan, an appropriate method(s) of instruction and an appropriate instructional aid(s).	Product and Reasoning proficiency	Performance Assessment	The cadet's lesson plan is reviewed and they are observed while instructing a 15-minute lesson.	Ongoing during the conduct of lessons related to EO M309.07	Chapter 3, Annex B, Appendix 3	Assistance is denied.
<b>PO 311 – Participate in a Recreational Biathlon Activity</b>								
Nil.								
<b>PO 320 – Describe Aspects of the Canadian Navy</b>								
Nil.								

EC / PC	Scope	Purpose	Target	Method	How	When	Resources	Limitations
<b>PO 321 – Rig a Lifting Device</b>								
321 PC	PO 321	The purpose of this PC is to assess the cadet's ability, as a member of a group, to safely rig, operate and de-rig sheers.	Product and Reasoning	Performance Assessment	The cadet is observed while rigging, operating and de-rigging sheers.	Ongoing during conduct of lessons related to EO M321.02.	Chapter 3, Annex B, Appendix 4	Nil.
<b>PO 323 – Serve in a Naval Environment</b>								
323 EC 01	EO M323.01	The purpose of this EC is to assess the cadet's knowledge of the corps' organizational structure.	Knowledge	Selected Response	The cadet is asked to identify corps' structure by using organization charts.	Upon completion of lessons related to EO M323.01.	Chapter 3, Annex B, Appendix 5	Nil.
323 PC	PO 323	The purpose of this PC is to assess the cadet's ability to perform the duties of the Quartermaster.	Skill	Performance Assessment	The cadet is observed while performing the duties of the Quartermaster.	Ongoing throughout the training year.	Chapter 3, Annex B, Appendix 6	Nil.

EC / PC	Scope	Purpose	Target	Method	How	When	Resources	Limitations
<b>PO 324 – Sail a Sailboat IAW the Canadian Yachting Association (CYA) White Sail Level II</b>								
324 EC 01	EO 324.02 and EO 324.04	The purpose of this PC is to assess the cadet's ability to prepare themselves and their sailboat prior to sailing.	Reasoning proficiency and Knowledge	Performance Assessment and Personal Communication	The cadet is observed while preparing to go sailing and asked to define terms, describe wind conditions and identify parts and their functions.	On completion of lessons related to EO M324.02 and M324.04.	Chapter 3, Annex B, Appendix 7	Nil.
324 EC 02	EO M324.03	The purpose of this PC is to assess the cadet's ability to tie knots and hitches.	Products and Knowledge	Performance Assessment and Personal Communication	The cadet is asked to tie and describe the use of knots and hitches.	Ongoing during conduct of EO M324.03	Chapter 3, Annex B, Appendix 8	Nil.
324 EC 03	EO M324.08	The purpose of this PC is to assess the cadets ability to describe the points of sail.	Knowledge	Personal Communication	The cadet is asked to describe the points of sail with the use of diagrams.	On completion of lessons related to EO M324.08	Chapter 3, Annex B, Appendix 9	Nil.

EC / PC	Scope	Purpose	Target	Method	How	When	Resources	Limitations
324 PC	PO 324 (Excluding EO M324.01)	The purpose of this PC is to assess the cadet's ability to perform all sailing skills associated with CYA White Sail Level II.	Skills	Performance Assessment	The cadet is observed throughout the weekend(s) – Use of coach notes and CYA White Sail II Checklist to track and record cadets' skill progression.	Ongoing throughout the weekend(s)	Chapter 3, Annex B, Appendix 10	Nil.
<b>PO 325 – Participate in a Nautical Training Weekend</b>								
Nil.								

THIS PAGE INTENTIONALLY LEFT BLANK



## **ANNEX B, APPENDIX 1**

### **303 PC**

#### **ASSESSMENT INSTRUCTIONS**

---

##### **PREPARATION**

---

###### **PRE-ASSESSMENT INSTRUCTIONS**

Review the assessment plan, assessment instructions and 303 PC Assessment Rubric and become familiar with the material prior to conducting the assessment.

There is no time allotted for 303 PC. It is to be administered whenever and wherever Phase Three cadets lead cadets through a leadership assignment.

The cadet shall be given a minimum of one practice leadership assignment which will be assessed using the 303 PC Assessment Rubric. The cadet will reflect and self-assess after the practice leadership assignment using the same rubric. The practice leadership assignment will not be recorded on the cadet's qualification record.

The formal leadership assignment will be given and assessed using the 303 PC Assessment Rubric. The cadet will reflect and self-assess after the leadership assignment using the same rubric. The leadership assignment shall be recorded on the cadet's qualification record.

If the cadet does not achieve the performance standard, the cadet will be given additional leadership assignments until the performance standard is met.

Photocopy the 303 PC Assessment Rubric twice for each leadership assignment given.

###### **PRE-ASSESSMENT ASSIGNMENT**

The cadet shall review the 303 PC Assessment Rubric and become familiar with the assessment criteria prior to the leadership assignment.

###### **ASSESSMENT METHOD**

Performance assessment and personal communication were chosen as it allows the assessor to observe the cadet's ability to perform the required skill(s) and make a judgement on the quality of performance.

---

##### **CONDUCT OF ASSESSMENT**

---

###### **PURPOSE**

The purpose of this PC is to assess the cadet's ability to lead cadets through a leadership assignment.

###### **RESOURCES**

- Two 303 PC Assessment Rubrics, and
- As per the leadership assignment.

###### **ASSESSMENT ACTIVITY LAYOUT**

As per the leadership assignment.

## ASSESSMENT ACTIVITY INSTRUCTIONS



While observing the cadet leading cadets through a leadership assignment, assess the quality of each criterion by indicating (eg, highlighting, circling, note taking) on the Assessment Rubric, the descriptive statement that best represents this judgement. Criteria for the leading through a leadership assignment are assessed as:

- Incomplete;
- Completed with difficulty;
- Completed without difficulty; or
- Exceeded standard.

Make notes of observations to provide descriptive post-assessment feedback.

1. Communicate to the cadet their leadership assignment either verbally or in writing.
2. Ensure the cadet understands the leadership assignment.
3. Distribute the Assessment Rubric to the cadet for self-assessment purposes.
4. Ensure the cadet understands their self-assessment will not be recorded on their qualification record.
5. Have the cadet conduct the leadership assignment.
6. Evaluate the cadet's leadership ability by observation. Record the result (eg, highlighting, circling, note taking) on the Assessment Rubric for each criterion.



The assessment of leadership abilities is subjective; however, the assessor's responsibility is to be as positive as possible.

7. Have the cadet assess their performance on their Assessment Rubric.

---

## POST ASSESSMENT INSTRUCTIONS

---

### RECORDING ASSESSMENT RESULTS

1. Indicate the overall performance assessment on the Assessment Checklist as:
  - (a) **Incomplete.** Overall, the cadet has not achieved the performance standard;
  - (b) **Completed with difficulty.** Overall, the cadet has achieved the performance standard with difficulty;
  - (c) **Completed without difficulty.** Overall, the cadet has achieved the performance standard without difficulty; or
  - (d) **Exceeded standard.** Overall, the cadet has exceeded the performance standard.
2. Record notes and observations in the assessor's feedback section of the Assessment Checklist.
3. Sign and date the Assessment Checklist.

4. Ensure a copy of the Assessment Checklist is attached to the cadet's training file.
5. The overall result will be recorded on the Phase Three Qualification Record located at Chapter 3, Annex C.

#### **PROVIDING ASSESSMENT FEEDBACK**

Discuss the cadet's self-assessment on their performance.

Ask the cadet what they felt went right during the leadership assessment, what did not go well and ask the cadet how they would improve their performance if the leadership assignment was given to them again.

Discuss the performance results of each section of the Assessment Rubric with the cadet.

Discuss the overall performance results with the cadet and provide the cadet with a copy of the completed rubric.

THIS PAGE INTENTIONALLY LEFT BLANK

**303 PC ASSESSMENT RUBRIC**

Cadet's Name: \_\_\_\_\_

Corps: \_\_\_\_\_

Date: \_\_\_\_\_

Division: \_\_\_\_\_

	Incomplete	Completed With Difficulty	Completed Without Difficulty	Exceeded the Standard
Communicate as a team leader.	Did not communicate with team members.	Communicated with team members occasionally. Team members needed clarification on many occasions.	Communicated with team members on many occasions. Team members needed few clarifications.	Communicated to the team throughout the leadership task. Team members did not need clarification.
Supervise cadets.	Did not supervise cadets.	Only supervised cadets at the beginning and / or end of the leadership assignment.	Supervised throughout the leadership assignment making some corrections when necessary.	Supervised throughout the leadership assignment making corrections as necessary.
Solve problems.	Did not solve the problem(s).		Solved the problem(s).	
Complete the leadership assignment.	Did not complete the leadership assignment.		Completed the leadership assignment.	
Perform self-assessment.	Did not complete the self-assessment.		Completed the self-assessment.	

*This form shall be reproduced locally.*

THIS PAGE INTENTIONALLY LEFT BLANK

**308 PC ASSESSMENT CHECKLIST**

Cadet's Name: \_\_\_\_\_

Corps: \_\_\_\_\_

Date: \_\_\_\_\_

Division: \_\_\_\_\_

**Analytical Performance Assessment:**

Direct a squad prior to a parade	Incomplete	Completed With Difficulty	Completed Without Difficulty
Fall in a squad.			
Call the roll.			
Size in a single rank and reform in threes (twos).			
Dress a squad.			
Inspect a squad.			
Hand over a squad.			

**Assessor's Feedback**

PO 308 Overall Assessment				
Check One	Incomplete	Completed With Difficulty	Completed Without Difficulty	Exceeded Standard
<b>Overall Performance</b>	The cadet has not achieved the performance standard by not completing at least one of the required skills.	The cadet has achieved the performance standard by completing one or more of the required objectives with difficulty.	The cadet has achieved the performance standard by completing all objectives without difficulty.	N/A

<b>Assessor's Name:</b>	<b>Position:</b>
<b>Assessor's Signature:</b>	<b>Date:</b>

*This form shall be reproduced locally.*

THIS PAGE INTENTIONALLY LEFT BLANK



**321 PC GROUP CHECKLIST**

Name	Safety			Rigging							Operation						Comments		
	Personal Conduct	Wearing personal safety equipment	Adherence to danger zone protocol	Spars	Head Lashing	Topping Lift	Main Purchase	Strops	Splay Tackle	Heel Tackles	Tag Line	Raising the Sheers	Hooking on a Load	Raising the Load	Securing the Load	Load Line		Lowering the Load	Lowering the Sheers
<b>Group 1</b>																			
1.																			
2.																			
3.																			
4.																			
<b>Group 2</b>																			
1.																			
2.																			
3.																			
4.																			
<b>Group 3</b>																			
1.																			
2.																			
3.																			
4.																			

I—Incomplete      D—Completed with difficulty      W—Completed without difficulty

THIS PAGE INTENTIONALLY LEFT BLANK



**COMMON TRAINING**  
**PHASE FOUR**  
**INSTRUCTIONAL GUIDE**



**SECTION 5**

**EO C409.03 – ACT AS AN ASSISTANT INSTRUCTOR**

Total Time:

90 min

**PREPARATION**

**PRE-LESSON INSTRUCTIONS**

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-604/PG-001, *Phase 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.

The course officer shall communicate with the training officer to ensure that cadets are paired with a Phase One, Two or Three instructor during a regular training session. As part of the training session, the instructor and cadet should be scheduled for two periods of instruction. The time the cadet is not instructing may be used for lesson preparation, briefing, debriefing, securing training aids, etc.

A number of factors may exist based on the size of the corps that will not allow for all Phase Four cadets to be scheduled for this EO at the same time. In this circumstance, special consideration should be given to minimize the cadet's absence from other areas of training. For example, scheduling half of the cadets for this EO while the other half is scheduled for EO C421.01 (Make a Boatswain's Belt) and reversing the schedule for the following training session.

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

OJT was chosen for this lesson as it allows the cadet to assist instructing a lesson in a safe and controlled environment. The OJT experience provides the cadet a practical application of learned skills in a realistic setting. The cadet reflects on the experience and receives feedback on the performance, which helps to shape future experiences. The cadet develops a sense of responsibility from the OJT aiding their development as a leader.

**INTRODUCTION**

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall have acted as an assistant instructor.

**IMPORTANCE**

It is important for cadets to act as an assistant instructor as it gives them the opportunity to practice, observe and assist in performing the duties of an instructor in a safe and controlled environment during a regular training session.

**Teaching Point 1****Have the cadets act as assistant instructors in on-the-job training (OJT).**

Time: 90 min

Method: On-the-job Training

**PURPOSE**

The purpose of having the cadets act as assistant instructors is to provide them with an authentic experience that allows them to observe and assist in performing the duties of an instructor during a regular training session. This activity is intended to be experiential in nature, providing the cadets the opportunity to work with experienced instructors, with assessment for learning being the focus rather than assessment of learning. When pairing the cadets with an instructor, consideration must be given to such things as the background, specialty and confidence of each cadet while in front of a class. The proper pairing of cadets with an instructor will help to ensure the OJT experience satisfies the stated purpose.

**GENERAL INSTRUCTIONS**

For one training session the cadets shall be paired with an instructor who is instructing a group of cadets participating in Phase One, Two or Three training.

The instructor is responsible for the following:

1. Ensure the cadet is briefed on their responsibilities and tasks prior to the commencement of the lesson.
2. Ensure the cadet is provided opportunities to perform some or all tasks normally completed by the instructor, such as:
  - (a) **Preparing training aids as required.** The cadet may be asked to gather and prepare training aids.



The focus of this EO should be the development of instructional skills and increasing experience and confidence while in front of a class. The instructor should develop training aids for the lesson. Give the cadet tasks such as setting up presentation aids and organizing training aids, eg, signing out an air rifle for a marksmanship lesson.

- (b) **Helping instruct the lesson.** The cadet may be asked to provide a demonstration, assist with the conduct of an in-class activity or instruct a TP of a lesson.
  - (c) **Supervising the cadets.** The cadet may be asked to assist with the supervision of the cadets.
  - (d) **Providing assistance as required.** The cadet may be asked to provide assistance or assist with skill development by coaching or demonstrating a skill being taught.
  - (e) **Securing training aids as required.** Once the lesson is complete, the cadet may be asked to secure and return training aids to storage.
3. If necessary, debrief the (Phase One, Phase Two or Phase Three) cadets, correcting any content errors or omissions made by the cadet.
  4. Debrief the cadet upon completion of the training session and provide them the opportunity to ask questions and seek additional feedback.

**CONFIRMATION OF TEACHING POINT 1**

The cadets' acting as an assistant instructor will serve as the confirmation of this TP.

---

**END OF LESSON CONFIRMATION**

---

The cadets' acting as an assistant instructor will serve as the confirmation of this lesson.

---

**CONCLUSION**

---

**HOMEWORK / READING / PRACTICE**

Nil.

**METHOD OF EVALUATION**

Nil.

**CLOSING STATEMENT**

Acting as an assistant instructor allows for the development of skills necessary to become a competent instructor by observing, practicing instruction and receiving feedback from an experienced instructor in a safe and controlled environment during a regular training session.

**INSTRUCTOR NOTES / REMARKS**

Prior to this EO, the course officer shall communicate with the training officer to ensure that cadets are paired with a Phase One, Two or Three instructor for a regular training session.

A number of factors may exist based on the size of the corps that will not allow for all Phase Four cadets to be scheduled for this EO at the same time. In this circumstance, special consideration should be given to minimize the cadet's absence from other areas of training. For example, scheduling half of the cadets for this EO while the other half is scheduled for EO C421.01 (Make a Boatswain's Belt) and reversing the schedule for the following training session.

During this EO the instructor shall:

1. brief the cadet prior to commencing the lesson;
2. assign the cadet tasks, to include:
  - (a) preparing training aids as required;
  - (b) helping instruct the lesson;
  - (c) supervising the cadets;
  - (d) providing assistance as required; and
  - (e) securing training aids as required;
3. monitor the cadet; and
4. debrief the cadet at the end of the lesson.

---

**REFERENCES**

---

Nil.



**COMMON TRAINING**  
**PHASE FOUR**  
**INSTRUCTIONAL GUIDE**



**SECTION 6**

**EO C409.04 – PARTICIPATE IN A CREATIVE LESSON-PLANNING WORKSHOP**

---

Total Time:

90 min

---

**PREPARATION**

---

**PRE-LESSON INSTRUCTIONS**

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-604/PG-001, *Phase 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 Attachments A–C.

Photocopy and three-hole punch the handouts located at Attachments E–G, J and M for each cadet.

Photocopy Attachment K for each group.

Photocopy and cut out the Benefits of Creative Lessons Strips located at Attachment I for each group.

Photocopy a sample lesson plan (from Phase One) for each group.

Prepare a piece of flip chart paper by writing the goals of the workshop:

1. define creativity;
2. identify the benefits of a creative lesson;
3. explain the creative process; and
4. incorporate creativity in the lesson-planning process.

Select music to play in the background for the entire workshop.

**PRE-LESSON ASSIGNMENT**

Ensure the cadets bring the binder provided in EO M409.01 (Identify Methods of Instruction).

**APPROACH**

An in-class activity was chosen for this lesson as it is an interactive way to provoke thought and stimulate interest in the creative process and how to incorporate creativity into the lesson-planning process.

---

## INTRODUCTION

---

### REVIEW

Nil.

### OBJECTIVES

By the end of this lesson the cadet shall have participated in a creative lesson-planning workshop to define creativity, identify the benefits of creative lessons, explain the creative process and learn how to incorporate creative elements into lesson plans.

### IMPORTANCE

It is important for cadets to incorporate creative elements into their lesson plans to make their lessons more interesting, enjoyable and engaging for the cadets.



---

**Teaching Point 1****Conduct an activity where the cadets will define creativity.**

Time: 15 min

Method: In-Class Activity

---

**ACTIVITY**

---

**OBJECTIVE**

The objective of this activity is to have the cadets define creativity.

**RESOURCES**

- Mixer worksheet located at Attachment A,
- Picture This... worksheet located at Attachment B,
- Cliche Stretching worksheet located at Attachment C,
- Mixer Answer Key located at Attachment D,
- Flip chart paper,
- Markers, and
- Stereo.

**ACTIVITY LAYOUT**

1. Set up three workstations.
2. Label the workstations as A, B, and C and place flip chart paper and the corresponding attachments at each station.
3. Ensure the lesson location:
  - (a) is physically safe;
  - (b) allows for manipulation of the physical setting such as lighting, temperature and colour to make it more conducive to learning;
  - (c) is large enough to accommodate small group and whole group activities; and
  - (d) allows for the incorporation of movement into the lesson.

**ACTIVITY INSTRUCTIONS**

1. Divide the cadets into equal groups at each station.



Display the chart paper illustrating the worksheet goals.

2. Introduce the goals of the workshop. Read the goals of the workshop together.
3. Instruct the cadets to work in their groups brainstorming ideas about creativity and write their responses on flip chart paper.

4. Instruct the cadets to follow the directions at their station to complete the activity.



Play music in the classroom while the cadets are completing individual and group work.

5. Provide the cadets with two minutes to present an example of their activity and to explain how their activity was creative. Encourage the cadets to use a visual representation of their activity on flip chart paper.
6. Explain to cadets that:
- (a) thinking creatively does not always make sense; and
  - (b) sometimes the brain must think in different ways to find the answer.
7. Present the cadets with the following problem and answer:
- (a) If you throw a ball as hard as you can, how does it come back to you?
  - (b) It doesn't hit anything, no one catches it, and no one else throws it back.
  - (c) Answer: If you throw the ball up in the air.
8. Provide the cadets with the following definition of creativity:
- (a) Creativity is the combining of elements in a new way.
  - (b) A new idea or product is often a combination of unlike elements previously thought to be completely unrelated.



There are two types of creativity:

- **Technical.** People create new theories, technologies or ideas; and
- **Artistic.** Involves unique methods of self-expression.

Creative people have three qualities:

- an **ability** to imagine relationships between unlike items,
- a **playful attitude** towards new ideas, and
- a **willingness** to work at changing and improving ideas and solutions.

9. Compare the definition with the ideas that the cadets brainstormed on their flip chart paper.

#### SAFETY

Nil.

---

#### CONFIRMATION OF TEACHING POINT 1

---

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

**Teaching Point 2**

**Have the cadets participate in activities that celebrate and encourage creativity.**

Time: 10 min

Method: In-Class Activity

---

**ACTIVITY**


---

**OBJECTIVE**

The objective of this activity is to have the cadets participate in activities that celebrate and encourage creativity.

**RESOURCES**

- Celebrate Success handout located at Attachment E (one per cadet),
- Flip chart paper, and
- Markers.

**ACTIVITY LAYOUT**

Nil.

**ACTIVITY INSTRUCTIONS**

1. Explain to the cadets that upon hearing the attention signal Two Snaps and a Clap, they will:
  - (a) repeat the signal immediately by snapping fingers on both hands twice and clapping once;
  - (b) stop, look at the instructor and wait for an announcement; and
  - (c) carry on when told to do so.
2. Have the cadets practice the two snaps and a clap.
3. Distribute the Celebrate Success handout located at Attachment E to each cadet.
4. Read Attachment E together.

**STIMULATE THE BRAIN TO THINK CREATIVELY**

The right side of the brain is the creative side and the left side of the brain is the mathematical side. One side of the brain usually dominates the other with scientific people having a more dominant left side and artistic people having a more dominant right side.

Creativity can be improved by having both sides of the brain switched on and functioning. The left side of the brain controls the right side of the body and the right side of the brain controls the left side of the body. Physical activity increases oxygen flow to the brain and helps it function better.

5. Divide the cadets into four groups to represent each cheer.
6. Provide the cadets two minutes to practice each cheer.

7. Provide each group one minute each to demonstrate each cheer to the class and have them participate in their cheer after each demonstration.
8. Debrief the cadets by emphasizing the importance for motivation and physical activity in lessons.

### SAFETY

Nil.

---

### CONFIRMATION OF TEACHING POINT 2

---

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

---

### Teaching Point 3

**Conduct an activity where the cadets will identify the benefits of a creative lesson.**

Time: 15 min

Method: In-Class Activity

---



Present the following information to the cadets prior to conducting the activity.

The preparation of a well-developed lesson:

- provides structure and organization;
- guides the instructor through each stage of the lesson; and
- ensures that all essential information is delivered.

A well-developed lesson does not ensure the cadet is interested and engaged in the learning process. Well-planned lessons that creatively challenge and involve the cadets in a variety of activities engage the cadets in the learning process and ensure that learning outcomes are achieved.



Ask the cadets to think about a time when they were bored during a lesson and a time when they were interested during a lesson. Have them think about the two experiences as they take part in the brainstorming activity.

---

### ACTIVITY

Time: 10 min

---

### OBJECTIVE

The objective of this activity is to have the cadets identify the benefits of a creative lesson.

### RESOURCES

- The Benefits of Creative Lessons handout located at Attachment F
- The Benefits of Creative Lessons Worksheet located at Attachment G,

- The Benefits of Creative Lessons Answer Key located at Attachment H,
- The Benefits of Creative Lessons Phrase Strips located at Attachment I (one set per group),
- Flip chart paper,
- Markers,
- Pencils / pens, and
- Tape.

### ACTIVITY LAYOUT

Nil.

### ACTIVITY INSTRUCTIONS

1. Divide the cadets into groups of three or four.
2. Distribute the Benefits of Creative Lessons handout located at Attachment F to each cadet and review the handout together.
3. Distribute the Benefits of Creative Lessons worksheet located at Attachment G to each cadet.
4. Give the cadets five minutes to work together to complete the worksheet.
5. After five minutes review the answers using the Benefits of Creative Lessons Answer Key located at Attachment H.
6. Distribute the Strips located at Attachment I, flip chart paper and tape to each group.
7. Have each group divide their sheet of flip chart paper into two columns:
  - (a) uncreative lesson, and
  - (b) creative lesson.
8. Have each group place each strip in the appropriate column.
9. Review the cadets' posters and debrief the cadets.



All strips are located under the creative lesson column.



Many instructors do not engage cadets because they do not use enough creativity in their teaching. Some aspects of the cadet program are personally interesting to the cadets which helps compensate for this. Some lessons however, are not personally interesting to the cadets and depend more heavily on the instructors' creative ability.

### SAFETY

Nil.

---

### CONFIRMATION OF TEACHING POINT 3

---

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

---

#### Teaching Point 4

**Conduct an activity where the cadets will identify the stages of the creative process.**

Time: 20 min

Method: In-Class Activity

---



Present the following information to the cadets prior to conducting the activity.

#### THE CREATIVE PROCESS

A lesson plan is an organized outline for a single period of instruction. It is a necessary guide for instructors because it tells them:

- what to do,
- in what order to do it, and
- what method(s) to use in teaching the material.

Each time an instructor is faced with the challenge of planning a creative lesson they can apply the creative thinking process as outlined below.

---

#### ACTIVITY

Time: 15 min

---

#### OBJECTIVE

The objective of this activity is to have the cadets participate in the creative process.

#### RESOURCES

- The Creative Process handout located at Attachment J (one per cadet),
- Forced Analogy worksheet located at Attachment K (one per group),
- Forced Analogy Guide located at Attachment L,
- Empty match box (one per group), and
- HB # 2 pencil (one per group).

#### ACTIVITY LAYOUT

Nil.

**ACTIVITY INSTRUCTIONS**

1. Distribute the Creative Process handout located at Attachment J to each cadet.
2. Review the process with the cadets.
3. Distribute an empty matchbox and the Forced Analogy worksheet to each group.
4. Provide five minutes for the groups to compare the matchbox to their local corps. Guide the groups through this step by offering assistance as required. Encourage them to be creative in their comparison.



Circulate around the room to ensure that the cadets are processing the information. Use Attachment L as a guide to cadets experimenting difficulty.

5. Have the cadets copy their responses in the forced analogy blank template for the matchbox activity.



If groups finish early, they can continue with the second analogy.

- a. Distribute a HB # 2 pencil to each group.
- b. Have the cadets use forced analogy to compare parts of the pencil to the Canadian Cadet Organization (CCO).
- c. Have the cadets write their responses on the Forced Analogy worksheet.

6. Have each group assign one of its members to share their chart with the whole group.
7. Have the cadets work in their groups and alternately ask the questions from the Forced Analogy worksheet. Allow them to refer to The Creative Process handout located at Attachment J to help answer the questions.

**SAFETY**

Nil.

---

**CONFIRMATION OF TEACHING POINT 4**


---

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

---

**Teaching Point 5**

**Conduct an activity where the cadets will incorporate creativity into the lesson-planning process.**

Time: 20 min

Method: In-Class Activity

---



Present the following information to the cadets prior to conducting the activity.

## INCORPORATE CREATIVITY INTO A LESSON PLAN

Instructors are constantly challenged to plan lessons that engage cadets in the learning process. Often the only difference between creative and uncreative instructors is self-perception. Creative instructors see themselves as creative and have the confidence to attempt new things. Uncreative instructors do not think about creativity and do not give themselves the opportunity to create anything new.



The first step towards becoming more creative is to relax. It is far more difficult to be creative when the body is tired or stressed. Creativity is found in the subconscious mind which is more accessible in a relaxed state.

To be creative during lesson planning instructors set aside time to examine if there is a better way of instructing a previously taught lesson or to play around with different ways of instructing a new lesson. This process should become a habitual part of the instructor's thinking.

Creative lessons are filled with physical and mental activities that involve all the cadets. The instructor should ensure that the cadets always feel emotionally safe in the learning environment and can take part in all learning activities without fear of being embarrassed, put down or ridiculed. Instructors can do this by:

- showing a positive attitude;
- showing interest in the lesson topic;
- treating cadets respectfully and demanding that cadets treat their peers respectfully;
- challenging cadets with fun activities that are not too easy or too difficult;
- rewarding effort as well as results;
- appealing to different learning styles;
- providing specific feedback;
- encouraging the cadets;
- communicating clear expectations and routines; and
- providing processing time.

---

### ACTIVITY

Time: 15 min

---

### OBJECTIVE

The objective of this activity is to have the cadets incorporate creative elements into the lesson-planning process.

### RESOURCES

- Ways to Incorporate Creativity handout located at Attachment M, and
- Sample lesson plan (one per group).





The sample lesson plan can be any lesson plan that has been developed for Phase One training. A sample lesson plan should be developed if none are available.

As an alternative, cadets may use the lesson plan they developed for EO M409.05 (Instruct a 30-Minute Lesson).

### **ACTIVITY LAYOUT**

Nil.

### **ACTIVITY INSTRUCTIONS**

1. Distribute the Ways to Incorporate Creativity handout located at Attachment M and review as a class.
2. Distribute the sample lesson plan to each group.
3. Allow each group 10 minutes to adapt a lesson plan by incorporating some of the creative elements at appropriate places throughout the lesson.
4. Circulate around the room providing assistance as required.
5. Give each group two minutes to present their ideas for their lessons to the class.

### **SAFETY**

Nil.

---

### **CONFIRMATION OF TEACHING POINT 5**

---

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

---

### **END OF LESSON CONFIRMATION**

---

The cadets' participation in the lesson-planning activity will serve as the confirmation of this lesson.

---

### **CONCLUSION**

---

### **HOMEWORK / READING / PRACTICE**

Nil.

### **METHOD OF EVALUATION**

Nil.

### **CLOSING STATEMENT**

Lessons that creatively challenge and involve the cadets in a variety of activities engages them in the learning process and ensure that learning outcomes are achieved.

### **INSTRUCTOR NOTES / REMARKS**

This EO should be scheduled as one training session.

This EO shall be conducted after EO M409.05 (Instruct a 30-Minute Lesson).

---

## REFERENCES

---

- C0-375 ISBN 978-1-879097-10-0 Kagan, S., & Kagan, M. (2009). *Kagan cooperative learning*. San Clemente, CA: Kagan Publishing.
- C0-377 Canadian Yachting Association. (2002). *Level 2 technical coach manual*. Kingston, ON: Canadian Yachting Association.
- C0-381 McDonald, E. (2006). *How to involve and engage students*. Retrieved March 4, 2009, from [http://www.education-world.com/a\\_curr/columnists/mcdonald/mcdonald007.shtml](http://www.education-world.com/a_curr/columnists/mcdonald/mcdonald007.shtml)
- C0-383 Bell, A. (2007). *Creating a learning centered environment–Introduction*. Retrieved February 23, 2009, from <http://www.dialogueonlearning.tc3.edu/model/environment/Introduction-grp.htm>
- C0-385 Exalted Living. (2009). *Creativity on demand*. Retrieved March 3, 2009, from <http://www.exaltedliving.com/creativity.htm>
- C0-386 International Forum of Educational Technology & Society. (2006). *Integrating creativity into online university courses*. Retrieved February 11, 2009, from [http://ifets.ieee.org/discussions/discuss\\_september2006.html](http://ifets.ieee.org/discussions/discuss_september2006.html)
- C0-387 Beals, G. (1998). *Thomas Edison "Quotes"*. Retrieved March 9, 2009, from <http://www.thomasedison.com/index.html>
- C0-388 Schoenherr, N. (2007). *Being more creative in everyday life is simple, says author of 'Group Genius'*. Retrieved March 10, 2009, from <http://news-info.wustl.edu/tips/page/normal/9421.html>
- C0-389 Soria, R. (2009). *How to think like a genius*. Retrieved March 09, 2009, from <http://www.creativity-portal.com/howto/a/davinci/genius.html>
- C0-395 MindTools. (2009). *Approaches to creativity*. Retrieved March 16, 2009, from [http://www.mindtools.com/pages/article/newCT\\_00.htm](http://www.mindtools.com/pages/article/newCT_00.htm)

MIXER

Proctor and Gamble very creatively combined Pringles potato chips and printing to produce Pringles Prints Potato Chips. Words and images are printed on one side of individual crisps in blue or red. (<http://www.junkfoodnews.net/PringlesPrints.htm>)

Combine the two elements to make a new phrase / word. The first one is done for you.

A TROLLEY AND A SUITCASE TO GET

luggage on wheels

AN IGLOO AND A HOTEL TO GET AN

\_\_\_\_\_

A PHOTOCOPIER AND A TELEPHONE TO GET A

\_\_\_\_\_

A BELL AND A CLOCK TO GET AN

\_\_\_\_\_

A SURF BOARD AND A SAIL BOAT TO GET

\_\_\_\_\_

FRENCH FRIES AND CHEESE TO GET

\_\_\_\_\_

THIS PAGE INTENTIONALLY LEFT BLANK

**PICTURE THIS...**

Look at each picture and discuss how the pictures are creative.





*Note. From Creativity Portal: Nit Wits, by C. Dunmire, 2007, Copyright (2007) by Chris Dunmire. Retrieved April 23, 2009, from <http://www.creativity-portal.com/becreative/activities>*

Figure B-1 Creative Pictures

**Creativity / Writing Prompt:**

List five ways the little gloved one can have its reflection, seeing all of his fingers upright. Tap into that imagination of yours and take it away!

**If you can think it,  
you've just created it,  
even if you can't  
hold it in your hand."**

— *Chris Dunmire*

## CLICHE STRETCHING

cliche *n* : a trite phrase or expression : trite *adj* : used so commonly that the novelty has worn off — *Merriam-Webster Dictionary*

This creativity exercise forces your brain to buzz. Skim through the list provided and identify the phrases that you find interesting. Then combine two or three cliches to form new coherent or funny phrases. Read the examples below for ideas.



a bad scene  
add insult to injury  
agree to disagree  
all things considered  
all too soon  
along these lines  
ample opportunity  
armed to the teeth  
as a matter of fact  
at a loss for words  
at one fell swoop  
avoid it like the plague  
awaiting further orders

back at the ranch  
back to the drawing board  
bated breath  
beginning of the end  
before you know it  
benefit of the doubt  
best-laid plans  
better late than never  
better left unsaid  
beyond the shadow of a doubt  
bite the bullet  
bitter end  
bone of contention  
bottom line  
budding genius

leave no stone unturned  
leaves much to be desired  
leave up in the air  
lend a helping hand  
let well enough alone  
line of least resistance  
little woman  
lit up like a Christmas tree  
live and let live  
lock, stock, and barrel  
long arm of the law  
look before you leap

marked contrast  
matter of life and death  
mecca for travelers  
method to his madness  
milk of human kindness  
miraculous escape  
moment of truth  
momentous occasion  
monumental traffic jam  
moot point  
more than meets the eye  
more the merrier  
motley crew

narrow escape  
nearest and dearest

Instructional Guide

burning question  
busy as a bee  
by leaps and bounds  
by the same token

needs no introduction  
never a dull moment  
never before in the history of  
nipped in the bud  
no sooner said than done

calm before the storm  
call of the wild  
casual encounter  
chain reaction  
charged with emotion  
checkered past  
cherished belief  
circumstances beyond my control  
clear as crystal  
come full circle  
contents noted  
cool as a cucumber  
curiously enough  
cut a long story short  
cut down in his prime

one and the same  
ongoing dialogue  
on more than one occasion  
open secret  
order out of chaos  
other things being equal  
outer directed  
overwhelming odds  
own worst enemy

days are numbered  
dead as a doornail  
deafening crash  
depths of despair  
diamond in the rough  
dig in your heels  
do not hesitate to  
drastic action  
due consideration

pales in comparison  
paralyzed with fright  
paramount importance  
pay the piper  
peer group  
pet peeve  
pick and choose  
pie in the sky  
pinpoint the cause  
pipe dream  
place in the sun  
play hardball  
play it by ear  
poor but honest  
powder keg  
powers that be  
pros and cons  
proud heritage  
proud possessor  
pull one's weight

each and every  
easier said than done  
eat, drink, and be merry  
eminently successful  
engage in conversation  
epic struggle  
even tenor  
exception that proves the rule  
existing conditions  
express one's appreciation

rack and ruin  
ravishing beauty  
red-letter day  
regrettable incident  
reigns supreme  
reliable source  
remedy the situation  
right on  
ripe old age  
round of applause

fall on bad times  
fall on deaf ears  
far and wide  
far be it from me  
fateful day  
fate worse than death  
feel free to  
feel vulnerable  
festive occasion  
few and far between

sadder but wiser  
saw the light of day  
scathing sarcasm  
sea of faces



final analysis  
finishing touches  
fit as a fiddle  
food for thought  
fools rush in  
foregone conclusion  
foul play  
from the sublime to the ridiculous

generation gap  
give the green light to  
go down the drain  
goes without saying  
good team player  
grave concern  
green with envy  
grim reaper  
grind to a halt

hands across the sea  
happy pair  
hastily summoned  
have the privilege  
heartfelt thanks  
heart of the matter  
heart's desire  
heated argument  
heave a sigh of relief  
herculean efforts  
hook, line, and sinker  
hook or crook  
hope for the future  
hot pursuit  
hunker down

ignorance is bliss  
ill-fated  
immeasurably superior  
in close proximity  
infinite capacity  
innocent bystander  
in no uncertain terms  
in our midst  
in reference to  
in short supply  
in the limelight  
in the nick of time  
in the same boat with  
in the twinkling of an eye  
in this day and age  
into full swing  
irony of fate

seat of learning  
second to none  
select few  
selling like hotcakes  
shattering effect  
shift into high gear  
shot in the arm  
sigh of relief  
silence broken only by  
silhouetted against the sky  
simple life  
skeleton in the closet  
snug as a bug in the rug  
social amenities  
spectacular event  
spirited debate  
stick out like a sore thumb  
stick to one's guns  
straight and narrow path  
structure one's day  
such is life  
superhuman effort  
supreme sacrifice  
sweat of his brow  
sweeping changes  
sweet sixteen

take the bull by the horns  
telling effect  
terror stricken  
thanking you in advance  
there's the rub  
this day and age  
those present  
throw a monkey wrench  
throw a party  
throw caution to the wind  
tie that binds  
time of one's life  
tongue in cheek  
too funny for words  
too numerous to mention  
tough it out  
tower of strength  
trials and tribulations  
trust implicitly

uncharted seas  
unprecedented situation  
untimely end  
untiring efforts

irreplaceable loss  
it dawned on me

vale of tears  
vanish into thin air

keep options open

watery grave  
wax eloquent/poetic  
weaker sex  
wear and tear  
whirlwind tour  
wide open spaces  
words fail to express  
word to the wise  
wrought havoc

labor of love  
lashed out at  
last analysis  
last but not least  
last-ditch effort  
leaps and bounds

*Note. From Creative Slush by C. Dunmire, 2009, Copyright 2005–2009 by Chris Dunmire. Retrieved April 23, 2009, from <http://chrisdunmire.com/fun/mixedcliche.shtml>*

Figure C-1 Brain Bender

MIXER ANSWER KEY

Proctor and Gamble very creatively combined Pringles potato chips and printing to produce Pringles Prints Potato Chips. Words and images are printed on one side of individual crisps in blue or red. (<http://www.junkfoodnews.net/PringlesPrints.htm>)

Combine the two elements to make a new word. The first one is done for you.

A TROLLEY AND A SUITCASE TO GET

***luggage on wheels***

AN IGLOO AND A HOTEL TO GET AN

***ice hotel***

A PHOTOCOPIER AND A TELEPHONE TO GET A

***fax machine***

A BELL AND A CLOCK TO GET AN

***alarm clock***

A SURF BOARD AND A SAIL BOAT TO GET

***wind surfing***

FRENCH FRIES AND CHEESE TO GET

***poutine***

THIS PAGE INTENTIONALLY LEFT BLANK

# CELEBRATE SUCCESS

## **BRAIN KISS**

1. Kiss the fingers on your open right hand.
2. Transfer the kiss to your brains by tapping your foreheads with the kissed hand.
3. Finish the kiss with flair by throwing the kissed hand in the air.

## **TRUCK DRIVER**

1. Put your hands on the steering wheel of your pretend big rig.
2. Reach your left hand up and pull the cord of your air horns.
3. Let out two throaty honking roars, "honk, honk!"
4. Reach up with your right hand for your walkie talkie and speak into it, saying, "Chhhsshhh. Good job, good buddy. Chhhsshhh."

## **CHEESE GRATER**

1. Hold an imaginary block of cheese in one hand and an imaginary grater in the other.
2. Slide the cheese against the graters five times and say, "Grate, grate, grate, grate, grate job!"

## **FIREWORKS**

1. Push your palms together in front of your chests.
2. Raise your palms above your head, imitating a firework shooting into the sky, complete with a "whooooooooosh" sound.
3. When the firework reaches its highest point of ascent, clap your hands above your head, snap your fingers, and wiggle your facedown fingers as you slowly lower your hands.

THIS PAGE INTENTIONALLY LEFT BLANK

## **THE BENEFITS OF CREATIVE LESSONS**

### **Prevent Disruptions**

Many times cadets misbehave during a lesson because of boredom. When they are bored, their minds begin to wander and they start to wonder " what would happen if I ..." The cadets' attention is not focused on the lesson and soon little disruptions occur which often become big disruptions. Creative lessons focus the cadets' attention on the instructional activity and they are too busy to become disruptive.

### **Engage Cadets**

When the instructor develops a fresh approach to a lesson, the cadets become interested in the lesson and motivated to pay attention. If the instructor conducts activities that physically and mentally involves the cadets, a transfer of power from the instructor to the cadets occurs. The cadets assume more responsibility for their own learning and the instructor becomes a guide.

### **Involve More Cadets**

In a traditional lesson, the instructor talks more than two thirds of the time, mostly giving instructions and answering questions. Less than one third of the time is spent on individual interactions with cadets in the form of praise, encouragement, specific feedback and guiding cadets as they work with others. In creative lessons the instructor communicates less to the whole group and more with individual cadets or small groups of cadets. By using techniques, such as those described at Attachment M, the instructor can involve at least half of the cadets in an interaction at one time and all of the cadets before the lesson is over.

### **Bridge the Gap Between Watching (Passive) and Doing (Active)**

Learning is an active social process and occurs best when the cadets participate with their peers and their instructor to experiment with new ideas and complete exercises. Creative lessons encourage cadets to actively participate by providing them with interactive opportunities, rather than simply sit and watch or listen to the instructor.

### **Identify Cadets' Weaknesses**

Continually involving cadets in interactive activities provides an observant instructor with numerous opportunities to identify who is doing well and who is experiencing difficulty. The instructor can then intervene and make changes to immediately meet that need rather than wait for the lesson or a series of lessons on the one topic to be concluded and tested.

### **Encourage the Cadets to Interact With One Another**

Creative learning activities actively encourage social interactions between the cadets and their peers, and the cadets and their instructors. Learning is an active social process which cadets need to practice if they are to get the most out of the Cadet Program.

### **Pace Learning**

To pace learning is to challenge the cadets just beyond their present level of ability. If challenged too far, cadets give up but if challenged too little, they become bored. The trick is to stimulate cadets to the point of mild discomfort, forcing them to learn something new.

THIS PAGE INTENTIONALLY LEFT BLANK



# BENEFITS OF CREATIVE LESSONS WORKSHEET

## Prevent Disruptions

Many times cadets \_\_\_\_\_ during a lesson because of boredom. Creative lessons \_\_\_\_\_ the cadets' \_\_\_\_\_ on the \_\_\_\_\_ and they are too busy to \_\_\_\_\_.

## Engage Cadets

If the instructor conducts activities that physically and mentally involve the cadets they assume more \_\_\_\_\_ for their own learning and the instructor becomes a \_\_\_\_\_.

## Involve More Cadets

In a \_\_\_\_\_ lesson, the instructor talks more than \_\_\_\_\_ of the time mostly giving \_\_\_\_\_ and \_\_\_\_\_. In \_\_\_\_\_ lessons the instructor communicates \_\_\_\_\_ to the whole \_\_\_\_\_ and more with individual \_\_\_\_\_ or \_\_\_\_\_ of cadets.

## Bridge the Gap Between Watching (Passive) and Doing (Active)

Creative lessons encourage cadets to \_\_\_\_\_ by providing them with \_\_\_\_\_ rather than simply \_\_\_\_\_ and \_\_\_\_\_ or \_\_\_\_\_ to the instructor.

## Identify Cadets' Weaknesses

Involving cadets in interactive activities provides an observant \_\_\_\_\_ with numerous opportunities to identify who is doing \_\_\_\_\_ and who is experiencing \_\_\_\_\_. The instructor can then \_\_\_\_\_ these cadets rather than wait for the lesson to be over.

## Encourage the Cadets to Interact With One Another

Creative learning activities actively encourage \_\_\_\_\_ between the cadets and their \_\_\_\_\_ and the cadets and their \_\_\_\_\_.

## Pace Learning

Creative lessons challenge the cadets just \_\_\_\_\_ their present level of ability. If challenged too far, cadets \_\_\_\_\_ but if challenged too little, they become \_\_\_\_\_.

THIS PAGE INTENTIONALLY LEFT BLANK

# BENEFITS OF CREATIVE LESSONS ANSWER KEY

## Prevent Disruptions

Many times cadets ***misbehave*** during a lesson because of boredom. Creative lessons ***focus*** the cadets' ***attention*** on the ***lesson*** and they are too busy to ***become disruptive***.

## Engage Cadets

If the instructor conducts activities that physically and mentally involve the cadets they assume more ***responsibility*** for their own learning and the instructor becomes a ***guide***.

## Involve More Cadets

In a ***traditional*** lesson, the instructor talks more than ***two thirds*** of the time mostly giving ***instructions*** and ***answering questions***. In ***creative*** lessons the instructor communicates ***less*** to the whole ***group*** and more with individual ***cadets*** or ***small groups*** of cadets.

## Bridge the Gap Between Watching (Passive) and Doing (Active)

Creative lessons encourage cadets to ***actively participate*** by providing them with ***interactive opportunities*** rather than simply ***sit*** and ***watch*** or ***listen*** to the instructor.

## Identify Cadets' Weaknesses

Involving cadets in interactive activities provides an observant ***instructor*** with numerous opportunities to identify who is doing ***well*** and who is experiencing ***difficulty***. The instructor can then ***help*** these cadets rather than wait for the lesson to be over.

## Encourage the Cadets to Interact With One Another

Creative learning activities actively encourage ***social interactions*** between the cadets and their ***peers*** and the cadets and their ***instructor***.

## Pace Learning

Creative lessons challenge the cadets just ***beyond*** their present level of ability. If challenged too far, cadets ***give up*** but if challenged too little, they become ***bored***.

THIS PAGE INTENTIONALLY LEFT BLANK

**BENEFITS OF CREATIVE LESSONS PHRASE STRIPS**

Cut-out each strip.

---

**PREVENT DISRUPTIONS**

---

**MORE CADETS INVOLVED**

---

***MORE DOING THAN WATCHING***

**IDENTIFIES CADETS' WEAKNESSES**

---

**MORE CADEET INTERACTIONS**

---

**PACE LEARNING**

---

**THE CREATIVE PROCESS**

<b>STAGE</b>	<b>DESCRIPTION</b>	<b>ACTION</b>
Preparation	<p>Look at the lesson content in as many different ways as possible.            Brainstorm possible creative elements to include in the lesson.            Decide generally where to include creative elements in the lesson.</p>	<p>Use visualizations such as diagrams, charts, and webs. Individually brainstorm at first.            Group brainstorm with other creative people if necessary.            Take time to reflect on the lesson and mentally picture what you would like to see happen during the lesson.</p>
Incubation	<p>Collect and sort all relevant information.            Continue to analyze and imagine ways to deliver the lesson.            Make connections between the two like or unusual items.            Prepare for the accident or eureka moment when everything falls into place.</p>	<p>Become an expert on the subject of the lesson. Do the homework.            Combine and recombine ideas, hunches and thoughts into different combinations no matter how much they are unlike or unusual.            Use the forced analogy.            Use reversal. Ask "How can the lesson be made boring?"            This may kick start your creativity.            Use provocation by making the statement: "Lessons should not be creative".            Ask "What have I done?" rather than "Why have I failed?".</p>
Illumination or Eureka	<p>Everything falls into place often when the problem is not being thought of at all.</p>	<p>Relax. Creativity is found in the subconscious mind which is more accessible in a relaxed state.</p>
Verification	<p>Decide if the new idea, insight, hunch or thought works.            Continue testing and improving the new idea, insight, hunch or thought.</p>	<p>Decide if the new idea improves the lesson or is merely a gimmick.            Write the lesson.            Never create something to be used forever.</p>

THIS PAGE INTENTIONALLY LEFT BLANK



# FORCED ANALOGY

## FORCED ANALOGY—MATCHBOX

MATCHBOX	LOCAL CORPS
Striking surface on two sides	
Two Parts	
Sliding Centre	
Cardboard	
Decorated with print and colours	
Contains Matches	

## FORCED ANALOGY—PENCIL

PENCIL	ASPECT OF THE CANADIAN CADET ORGANIZATION (CCO) SYMBOLIZED
Silver Ring	
Yellow Colour	
Six Sides	
Flat Sides	
Eraser	
Wood Shaft	
Lead	
Write	
Inexpensive	

# FORCED ANALOGY

## QUESTIONS:

1. What is the first stage of the creative process?
2. What is one technique which can be used in the incubation stage to make a connection between unlike elements?
3. What happens during the illumination or eureka stage?
4. What happens during the verification stage?

# FORCED ANALOGY GUIDE

The following is a list of possible answers. Use these answers to help guide cadets if they are having difficulty with the activity.

## FORCED ANALOGY—MATCHBOX

MATCHBOX	LOCAL CORPS
Striking surface on two sides	Flexibility
Two Parts	Officers and Cadets
Sliding Centre	More than one way to do things
Cardboard	Easily broken / can not be careless
Decorated with print and colours	Lots of fun activities
Contains Matches	Danger—always practice safety

## FORCED ANALOGY—PENCIL

PENCIL	ASPECT OF THE CANADIAN CADET ORGANIZATION (CCO) SYMBOLIZED
Silver Ring	Cadets receive medals and awards
Yellow Color	At Cadet Summer Training Centres different trades are identified by different colors
Six Sides	Cadet leaders have to remember to do many things
Flat Sides	Some aspects of cadet life are traditional
Eraser	Some cadets / officers / aspects of cadet life should be changed
Wood Shaft	Customs and traditions
Lead	Cadets can be challenging—get the lead out
Write	Cadets write lessons, orders, logbooks, attendance rolls, etc.
Inexpensive	The CCO offers many opportunities at little cost

## FORCED ANALOGY—PENCIL (alternate)

PENCIL	ASPECT OF THE CANADIAN CADET ORGANIZATION (CCO) SYMBOLIZED
Silver Ring	Highest Rank
Yellow Colour	Value excellence
Six Sides	Different types of training
Flat Sides	Things will not always run smoothly—pencil does not roll smoothly
Eraser	Colour represents the poppy
Wood Shaft	The Cadet Program is structured
Lead	In the centre of the pencil representing the aims of the CCO
Write	Good experience to put on a resume
Inexpensive	Can not always do things because of lack of money

## QUESTIONS:

- Q1. What is the first stage of the creative process?
- Q2. What is one technique which can be used in the incubation stage to make a connection between unlike elements?

Q3. What happens during the illumination or eureka stage?

Q4. What happens during the verification stage?

**ANTICIPATED ANSWERS:**

A1. The first stage is the preparation stage.

A2. The forced analogy, reversal and provocation techniques can be used in the incubation stage.

A3. An answer falls into place often unexpectedly.

A4. In the verification stage the instructor must decide if the new idea improves the lesson or is merely a gimmick, write the lesson and continually update the lesson.

## WAYS TO INCORPORATE CREATIVITY

### INTRODUCTION–USE ATTENTION-GETTING DEVICES

In the introduction, the instructor should capture the cadets' interest and motivate them to learn by using attention-getting devices, such as:

- an interesting fact related to the lesson topic that shocks, surprises or arouses curiosity;
- an unusual statistic related to the lesson topic;
- a personal anecdote related to the topic;
- a rhetorical question—the instructor does not want or expect the cadets to answer;
- an overt-response question—the instructor does want or expect the cadets to answer;
- an interesting quotation by a famous person;
- a visual demonstration such as an object, picture or some other representation that relates to the topic; and
- an explanation of how the topic is relevant to the cadets' lives or in their best interest.

### BODY–USE INFORMATION-PROCESSING TECHNIQUES

**Rally robin.** In pairs, cadets alternate generating oral responses.

**Round robin.** In teams, students take turns responding orally.

**Pairs check.** One partner solves a problem while the other coaches. Then they switch roles. After every two problems, pairs check their answers with another pair and celebrate.

**Rally coach.** Partners take turns, one solving a problem while the other coaches.

**Timed pair share.** In pairs, cadets share with a partner for a predetermined time while the partner listens. Then partners switch roles.

### CONFIRMATION–ACTIVITIES

**Jigsaw worksheets.** Instead of having cadets complete a worksheet individually, break them into small groups and assign a portion of the worksheet to each group. Each group must complete its assigned portion of the worksheet and use a poster or some other presentation aid to present the information to the whole group.

**Graphics.** Have the cadets create graphic organizers such as webs or mobiles to summarize information.

**Creative writing.** Have the cadets create rhymes, poems or songs to summarize information. If teaching terminology, symbols or similar information, have the cadets write a fairy tale or children's story using the information.

**Create a chart.** Type chronological information using a large font and cut it up into strips. Organize the cadets into pairs or small groups and give each pair or group an envelope with the strips of information and have them work together to place the information in the correct order and paste it on a sheet of chart paper. Time the activity for fun.

**Information chain.** Have each cadet write one fact that they have learned during the class on a piece of coloured paper, if possible. Have the class line up in front of the room and invite the first cadet to read their slip then fold it into a link and staple it. Invite the next student to read a fact and attach it to the chain and continue in this fashion until all cadets have created a link.

**Scavenger hunt.** Teach identification lessons by planting clues around the room and having cadets engage in a scavenger hunt. The clues may be actual items or pictures of items. When cadets find an actual item or some representation of it, they must describe the item to the group.

**Road trip.** Create a road trip. Place stop signs around the room containing information describing what the cadet must do. The cadets travel to each place, complete the activity and have their passport stamped.

## **CONCLUSION**

Read the closing statement directly from the lesson plan. Re-motivate the cadets by referring back to the introduction and stress how the material is relevant to their personal lives or in their best interest.

Finish in a dramatic manner with an attention-getting device such as that used to introduce the lesson.



**COMMON TRAINING**  
**PHASE FOUR**  
**INSTRUCTIONAL GUIDE**



**SECTION 7**

**EO C409.05 – ACT AS AN ASSISTANT DRILL INSTRUCTOR**

---

Total Time:

90 min

---

**PREPARATION**

---

**PRE-LESSON INSTRUCTIONS**

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-604/PG-001, *Phase 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.

**PRE-LESSON ASSIGNMENT**

The course officer shall communicate with the training officer to ensure that cadets are paired with a Phase One, Two or Three drill instructor during a regular training session. As part of the training session, the instructor and cadet should be scheduled for two periods of instruction. The time the cadet is not instructing may be used for lesson preparation, briefing, debriefing, securing training aids, etc.

A number of factors may exist based on the size of the corps that will not allow for all Phase Four cadets to be scheduled for this EO at the same time. In this circumstance, special consideration should be given to minimize the cadet's absence from other areas of training. For example, scheduling half of the cadets for this EO while the other half is scheduled for EO C421.01 (Make a Boatswain's Belt) and reversing the schedule for the following training session.

**APPROACH**

OJT was chosen for this lesson as it allows the cadet to assist instructing a drill lesson in a safe and controlled environment. The OJT experience provides the cadet a practical application of learned skills in a realistic setting. The cadet reflects on the experience and receives feedback on the performance, which helps to shape future experiences. The cadet develops a sense of responsibility from the OJT aiding their development as a leader.

---

**INTRODUCTION**

---

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall have acted as an assistant drill instructor.

**IMPORTANCE**

It is important for cadets to act as an assistant drill instructor as it gives them the opportunity to practice, observe and assist in performing the duties of a drill instructor in a safe and controlled environment during a regular training session.



**Teaching Point 1****Have the cadets act as assistant drill instructors in on-the-job training (OJT).**

Time: 90 min

Method: On-the-job Training

**PURPOSE**

The purpose of having the cadets act as assistant drill instructors is to provide them with an authentic experience that allows them to observe and assist in performing the duties of a drill instructor during a regular training session. This activity is intended to be experiential in nature, providing the cadets the opportunity to work with experienced instructors, with assessment for learning being the focus rather than assessment of learning. When pairing the cadets with an instructor, consideration must be given to such things as the background, specialty and confidence of each cadet while in front of a class. The proper pairing of cadets with an instructor will help to ensure the OJT experience satisfies the stated purpose.

**GENERAL INSTRUCTIONS**

For one training session the cadets shall be paired with an instructor who is instructing a group of cadets participating in PO 108 (Participate in an Annual Ceremonial Review Parade), PO 208 (Execute Drill as a Member of a Squad) or PO 308 (Direct a Squad Prior to a Parade).

The instructor is responsible for the following:

1. Ensure the cadet is briefed on their responsibilities and tasks prior to the commencement of the lesson.
2. Ensure the cadet is provided opportunities to perform some or all tasks normally completed by the instructor, such as:
  - (a) **Preparing training aids as required.** The cadet may be asked to gather and prepare training aids.



The focus of this EO should be the development of instructional skills and increasing experience and confidence while in front of a class. The instructor should develop training aids for the lesson. Give the cadet tasks such as setting up presentation aids and organizing training aids, eg, signing out rifles for a rifle drill lesson.

- (b) **Helping instruct the lesson.** The cadet may be asked to provide a demonstration or instruct a TP of a lesson.
  - (c) **Supervising the cadets.** The cadet may be asked to assist with the supervision of the cadets.
  - (d) **Providing assistance as required.** The cadet may be asked to provide assistance or assist with skill development by coaching or demonstrating a skill being taught.
  - (e) **Securing training aids as required.** Once the lesson is complete, the cadet may be asked to secure and return training aids to storage.
3. If necessary, debrief the (Phase One, Phase Two or Phase Three) cadets, correcting any content errors or omissions made by the cadet.
  4. Debrief the cadet upon completion of the training session and provide them the opportunity to ask questions and seek additional feedback.

**CONFIRMATION OF TEACHING POINT 1**

The cadets' acting as an assistant drill instructor will serve as the confirmation of this TP.

---

**END OF LESSON CONFIRMATION**

---

The cadets' acting as an assistant drill instructor will serve as the confirmation of this lesson.

---

**CONCLUSION**

---

**HOMEWORK / READING / PRACTICE**

Nil.

**METHOD OF EVALUATION**

Nil.

**CLOSING STATEMENT**

Acting as an assistant drill instructor allows for the development of skills necessary to become a competent drill instructor by observing, practicing instruction and receiving feedback from an experienced drill instructor in a safe and controlled environment during a regular training session.

**INSTRUCTOR NOTES / REMARKS**

Prior to this EO, the course officer shall communicate with the training officer to ensure that cadets are paired with a Phase One, Two or Three drill instructor for a regular training session.

A number of factors may exist based on the size of the corps that will not allow for all Phase Four cadets to be scheduled for this EO at the same time. In this circumstance, special consideration should be given to minimize the cadet's absence from other areas of training. For example, scheduling half of the cadets for this EO while the other half is scheduled for EO C421.01 (Make a Boatswain's Belt) and reversing the schedule for the following training session.

During this EO the instructor shall:

1. brief the cadet prior to commencing the lesson;
2. assign the cadet tasks, to include:
  - (a) preparing training aids as required;
  - (b) helping instruct the lesson;
  - (c) supervising the cadets;
  - (d) providing assistance as required; and
  - (e) securing training aids as required;
3. monitor the cadet; and
4. debrief the cadet at the end of the lesson.

---

**REFERENCES**

---

Nil.



**COMMON TRAINING  
PHASE FOUR  
INSTRUCTIONAL GUIDE**



**SECTION 8**

**EO C409.06 – INSTRUCT A 30-MINUTE DRILL LESSON**

Total Time:

90 min

---

**PREPARATION**

---

**PRE-LESSON INSTRUCTIONS**

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-604/PG-001, *Phase 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.

The course officer shall communicate with the training officer to:

1. place the Phase Four cadets into the Phase One and Phase Two drill instructor schedules;
2. ensure the cadets are assigned a 30-minute lesson at least one week prior to conducting this assessment, to include:
  - (a) a lesson specification, and
  - (b) an instructional guide; and
3. assign an assessor to each lesson.

Ensure that all resources requested by the cadets are available.

Photocopy the Drill Instructional Techniques Assessment Form located at Attachment A for each cadet.

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

A practical activity was chosen for this lesson as it is an interactive way for cadets to develop drill instructional skills in a safe and controlled environment.

---

**INTRODUCTION**

---

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall have instructed a 30-minute drill lesson using a written lesson plan and the drill instruction sequence.

**IMPORTANCE**

It is important for cadets to instruct a 30-minute drill lesson as it gives them the opportunity to practice drill instructional skills in a practical setting and to receive feedback to further develop instructional skills and confidence.

---

**Teaching Point 1****Supervise while the cadets instruct a 30-minute lesson.**

Time: 85 min

Method: Practical Activity

---

**ACTIVITY**

---

**OBJECTIVE**

The objective of this activity is to have the cadets instruct a 30-minute drill lesson using a written lesson plan and the drill instruction sequence.

**RESOURCES**

Drill Instructional Techniques Assessment Form.

**ACTIVITY LAYOUT**

Nil.

**ACTIVITY INSTRUCTIONS**

1. Have each cadet, prior to the start of this lesson:
  - (a) research lesson content;
  - (b) plan a lesson;
  - (c) develop instructional aids (as required); and
  - (d) set up the lesson location (as required).
2. During the time allotted for this lesson, have each cadet:
  - (a) provide a copy of their written lesson plan to the assessor;
  - (b) instruct a 30-minute drill lesson by:
    - (1) introducing the lesson;
    - (2) presenting the content of the lesson;
    - (3) applying the drill instruction sequence;
    - (4) confirming the skills learned during the lesson; and
    - (5) concluding the lesson; and
  - (c) participate in a individual feedback session with the assessor upon completion of the lesson.



The Drill Instructional Techniques Assessment Form located at Attachment A is used to provide feedback on the cadet's lesson. The form is intended solely for the purposes of assessment for learning, providing the cadets with the feedback they need to improve their own skills.

3. Once all cadets have instructed a 30-minute drill lesson, debrief the (Phase Four) cadets by providing feedback, focusing on:
  - (a) best practices,
  - (b) general trends and key areas for improvement, and
  - (c) re-motivation, highlighting the effort and accomplishments of the group.

#### **SAFETY**

Nil.

---

#### **CONFIRMATION OF TEACHING POINT 1**

---

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

---

#### **END OF LESSON CONFIRMATION**

---

The cadet's instructing a 30-minute drill lesson will serve as the confirmation of this lesson.

---

#### **CONCLUSION**

---

#### **HOMEWORK / READING / PRACTICE**

Nil.

#### **METHOD OF EVALUATION**

Nil.

#### **CLOSING STATEMENT**

Practicing drill instruction allows for the development of fundamental skills necessary to become a drill instructor while further developing confidence and providing a sense of accomplishment.

#### **INSTRUCTOR NOTES / REMARKS**

This EO shall be conducted after C309.04 (Identify Formations for Drill Instruction), EO C309.05 (Plan a Drill Lesson) and EO C309.06 (Instruct a 15-Minute Drill Lesson).

The cadets shall instruct Phase One or Phase Two cadets on a regular training session.

The course officer shall communicate with the training officer to:

1. place the Phase Four cadets into the instructor schedule; and
2. ensure the cadets are assigned a lesson at least one week prior to conducting this EO, to include:
  - (a) a lesson specification, and
  - (b) an instructional guide.

Time for lesson planning for this EO is available in EO C309.05 (Plan a Drill Lesson), should the course officer deem it necessary.

Adjust the period allocation for this EO if all three periods are not required for each Phase Four cadet to instruct a 30-minute drill lesson.

---

**REFERENCES**

---

A0-002 A-PD-201-000/PT-000 Director History and Heritage 3-2. (2005). *The Canadian Forces manual of drill and ceremonial*. Ottawa, ON: Department of National Defence.

THIS PAGE INTENTIONALLY LEFT BLANK



**DRILL INSTRUCTIONAL TECHNIQUE  
 ASSESSMENT FORM**

Cadet's Name: \_\_\_\_\_

Division: \_\_\_\_\_

Lesson Topic: \_\_\_\_\_

CRITERIA	COMMENTS	Incomplete	Completed With Difficulty	Completed Without Difficulty
<b>PREPARATION</b>				
Maintained dress and deportment.				
Selected an appropriate squad formation.				
Used a lesson plan.				
Reviewed previous lesson.				
<b>INTRODUCTION</b>				
Stated what the cadets will learn.				
Stated why it is important.				
Stated where / when this skill will be applied.				
<b>BODY</b>				
Demonstrated complete movement, calling the time.				
Demonstrated and explained the first part of the movement (Squad 1).				
Had the squad practice the first part of the movement collectively, individually and collectively again.				
Taught the second part of the movement and each subsequent part in the same manner.				
Gave two complete demonstrations.				

CRITERIA	COMMENTS	Incomplete	Completed With Difficulty	Completed Without Difficulty
Practiced the complete movement with: <ul style="list-style-type: none"> <li>• the instructor calling the time,</li> <li>• the cadets calling the time, and</li> <li>• the cadets judging the time.</li> </ul>				
Used clear words of command and correct pauses.				
Gave appropriate and immediate feedback.				
Allowed questions after each movement.				
<b>END OF LESSON CONFIRMATION</b>				
Demonstrated the movement taught.				
Confirmation was conducted as a squad.				
Emphasized aspects of the movement with which the cadets experienced difficulty.				
<b>CONCLUSION</b>				
Summarized the lesson.				
Re-motivated the cadets.				
<b>FEEDBACK</b>				

\_\_\_\_\_  
 ASSESSOR'S SIGNATURE

\_\_\_\_\_  
 DATE

\_\_\_\_\_  
 CADET'S SIGNATURE

**CHAPTER 11**

**PO X20 – PARTICIPATE IN CAF FAMILIARIZATION ACTIVITIES**





**COMMON TRAINING  
ALL TRAINING LEVELS  
INSTRUCTIONAL GUIDE  
CANADIAN ARMED FORCES  
(CAF) FAMILIARIZATION**



**PO X20 – PARTICIPATE IN CAF FAMILIARIZATION ACTIVITIES**

---

Total Time:

---

For the following EOs, refer to the lesson specifications located in A-CR-CCP-601/PG-001, *Royal Canadian Sea Cadets Phase One Qualification Standard and Plan*:

- MX20.01A – Participate in a CAF Activity,
- MX20.01B – Participate in a CAF Familiarization Tour,
- MX20.01E – Attend a CAF Presentation,
- MX20.01F – Attend a CAF Commemorative Ceremony, and
- CX20.01 – Participate in CAF Familiarization Activities.

For the following EOs, refer to the instructional guides located in A-CR-CCP-601/PF-001, *Royal Canadian Sea Cadets Phase One Instructional Guides*:

- MX20.01C – Fire the C7 Rifle,
- MX20.01D – Participate in a Mess Dinner,
- MX20.01G – Participate in CAF Familiarization Video Activities, and
- MX20.01H – Participate in CAF Familiarization Learning Stations.

THIS PAGE INTENTIONALLY LEFT BLANK

**CHAPTER 12**

**PO 421**







## ROYAL CANADIAN SEA CADETS

### PHASE FOUR

### INSTRUCTIONAL GUIDE



### SECTION 1

### EO C421.01 – MAKE A BOATSWAIN'S BELT

Total Time:

90 min

### PREPARATION

#### PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-604/PG-001, *Phase 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.

Complete a boatswain's belt to be used as a model for the lesson.

Photocopy the Boatswain's Belt Planning Sheet located at Attachment A for each cadet.

Photocopy the Alternative Methods for Securing the Boatswain's Belt located at Attachment B if an alternative method is chosen.

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

An interactive lecture was chosen for TP 1 as it provides the instructor the opportunity to explain the use of a boatswain's belt prior to making one.

A demonstration and performance was chosen for TPs 2 and 3 as it allows the instructor to demonstrate making a boatswain's belt using a Portuguese Sennit while providing an opportunity for the cadets to practice this skill under supervision.

### INTRODUCTION

#### REVIEW

Nil.

#### OBJECTIVES

By the end of this lesson the cadet shall have made a boatswain's belt.

## **IMPORTANCE**

It is important for cadets to make a boatswain's belt as it introduces advanced ropework skills in a fun and challenging way, while providing a practical skill for carrying tools in an ornamental way.

---

**Teaching Point 1****Explain the use of a boatswain's belt.**

Time: 5 min

Method: Interactive Lecture

---

**USE OF A BOATSWAIN'S BELT**

Back in the days of sail, long voyages took months or even years to reach far-off destinations and ships were not able to resupply themselves. Equipment and supplies were limited to what the ship could carry, so only the essentials were brought on board. When tools were needed, the crew would improvise with the materials that were available.

One of the main duties of a boatswain on a sailing ship was to perform repairs to the rigging while the ship was underway. They would make belts from excess line to carry their tools aloft, freeing their hands to hold onto the ship as it pitched and rolled.

The boatswain's belt became a symbol of pride, often made with very elaborate and intricate knots, to indicate the boatswain's level of knowledge. Creativity of the maker was the only limitation to making a belt.

The belt is still used today as an ornamental way to carry knives and other tools.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 1 Completed Boatswain's Belt

---

**CONFIRMATION OF TEACHING POINT 1**

---

**QUESTIONS:**

- Q1. What is the use of a boatswain's belt?
- Q2. What is the only limitation to making a boatswain's belt?

**ANTICIPATED ANSWERS:**

- A1. To carry knives and other tools.
- A2. The maker's creativity.

**Teaching Point 2**

**Demonstrate and have the cadets make a Portuguese Sennit.**

Time: 15 min

Method: Demonstration and Performance



Demonstrate and have the cadets practice each step in making the Portuguese Sennit.



The Portuguese Sennit is made up of a series of half knots. When two half knots are tied together in opposite directions, they form a knot called a square knot. If they are tied in the same direction, the sennit will twist.

**STEPS FOR MAKING A PORTUGUESE SENNIT**

1. Pass a doubled line through a ring or foundation and lay the lines flat. Label the line on the left Line A and the line on the right Line B. The two centre lines will form the core of the sennit.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 2 Step 1

2. Lay Line A across the core, from left to right and pass it under Line B.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 3 Step 2

3. Pass Line B under the core and up between the core and Line A on the left.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 4 Step 3

4. Pull both lines tight, ensuring the core is kept flat. This will form a half knot.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 5 Step 4 (Half Knot)



To ensure the sennit holds its shape, keep the core flat and under tension.

5. To make a twisted Portuguese Sennit, skip to Step 7.
6. To make a flat Portuguese Sennit (as illustrated in Figure 6), form square knots by keeping Line A on top of the core as Steps 2–4 are repeated from the opposite direction. Continue repeating and alternating direction until the desired length is attained. Skip to Step 8.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 6 Step 5 (Flat Portuguese Sennit)

7. To make a twisted Portuguese Sennit (as illustrated in Figure 7), Steps 2–4 are repeated with the half knots tied in the same direction. If a twist to the right is desired, keep the left side line on top of the core. If a twist to the left is desired, keep the right side line on top of the core. Continue until the desired length is obtained.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 7 Step 7 (Twisted Portuguese Sennit)

8. Finish the Portuguese Sennit off by cutting the lines flush to the knots.



The Portuguese Sennit can be finished in many different ways, depending on its use and the creativity of the person.

### CONFIRMATION OF TEACHING POINT 2

The cadets' completion of a Portuguese Sennit will serve as the confirmation of this TP.

### Teaching Point 3

**Demonstrate and have the cadets make a boatswain's belt.**

Time: 60 min

Method: Demonstration and Performance



Demonstrate and have the cadets practice each step to make the boatswain's belt.

Distribute the Boatswain's Belt Planning Sheet located at Attachment A.

The figures in this demonstration show Inglefield clips used to secure the belt, however, any type of clip may be substituted.

Alternative methods for securing the belt are located at Attachment B.



A boatswain's belt is a representation of the style of its maker—be creative.

### STEPS FOR MAKING A BOATSWAIN'S BELT

1. Make a plan for how the boatswain's belt will be tied using the Boatswain's Belt Planning Sheet located at Attachment A.
2. Measure the line needed by wrapping the line around the waist 10 times. This will provide enough line to complete the belt with the addition of other decorative, finishing knots such as Turk's head.

3. Middle the line and attach to a clip with a cow hitch (as illustrated in Figure 8). This middled line will form the core of the belt.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 8 Step 3

4. Measure the core loosely around the waist to determine the size of the belt. Add approximately 10 cm (3 inches) to the measurement for each attachment loop. Mark this measurement on the core.
5. Slide the second clip onto the core to the mark and seize it in place using an elastic band (as illustrated in Figure 9). Ensure the core extends flat from the clip with the remaining lines extending on either side.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 9 Step 5

6. Shorten the lines by coiling the excess and seize them with an elastic band.

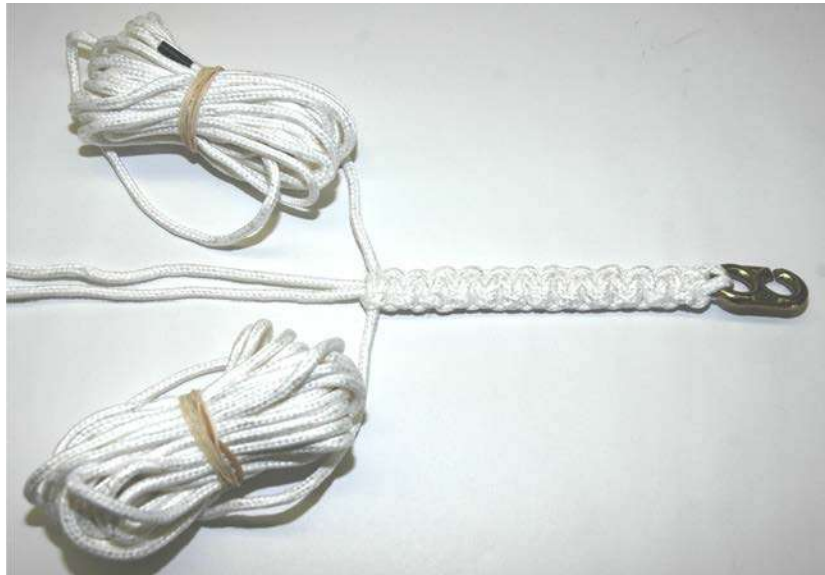




*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 10 Step 6

7. Start making the Portuguese Sennit, following the pattern drawn out on the planning sheet. Keeping the sennit tight will produce a stiff belt.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 11 Step 7

8. To add an attachment loop, extend a bight in one line of the core (as illustrated in Figure 12) and re-adjust the cow hitch as required to keep the core flat. Continue making the Portuguese Sennit past the bight.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 12 Bight Extended

9. When the core is covered, cut the excess line flush with the belt.
10. If desired, finish the belt with decorative covering knots, such as a Turk's head, at the clips.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 13 Finished Boatswain's Belt

---

**CONFIRMATION OF TEACHING POINT 3**

---

The cadets' completion of a boatswain's belt will serve as the confirmation of this TP.

---

**END OF LESSON CONFIRMATION**

---

The cadets' completion of a boatswain's belt will serve as the confirmation of this lesson.

---

**CONCLUSION**

---

**HOMEWORK / READING / PRACTICE**

If the cadets have not finished the boatswain's belt in the allotted time, have them finish at home and return with the finished product.

**METHOD OF EVALUATION**

Nil.

**CLOSING STATEMENT**

A boatswain's belt uses advanced ropework skills in a fun and challenging way and provides a practical way for carrying tools.

**INSTRUCTOR NOTES / REMARKS**

On most belts, Inglefield clips are used, however, any type of clip can be substituted.

The cadets may be required to complete the boatswain's belt on their own time.

---

**REFERENCES**

---

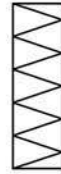
C1-158 ISBN 0-385-04025-3 Ashley, C. (1993). *The Ashley book of knots*. New York, NY: Doubleday.

THIS PAGE INTENTIONALLY LEFT BLANK

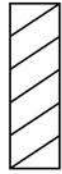
## BOATSWAIN'S BELT PLANNING SHEET



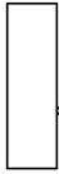
### LEGEND



Flat Portuguese Sennit



Twisted Portuguese Sennit



Attachment Loop



Covering Knot

### Directions

1. Mark down what attachment scheme will be used on the ends.
2. Using the designs in the legend, mark out what knots the belt will be made with.
3. Locate and draw in any attachment loops.
4. Locate the positions for any covering knots.

Note: This planning sheet should be used as a guide and is not to scale.

THIS PAGE INTENTIONALLY LEFT BLANK

## ALTERNATIVE METHODS FOR SECURING A BOATSWAIN'S BELT



The following instructions are to be used in conjunction with the steps for making a boatswain's belt in the instructional guide.



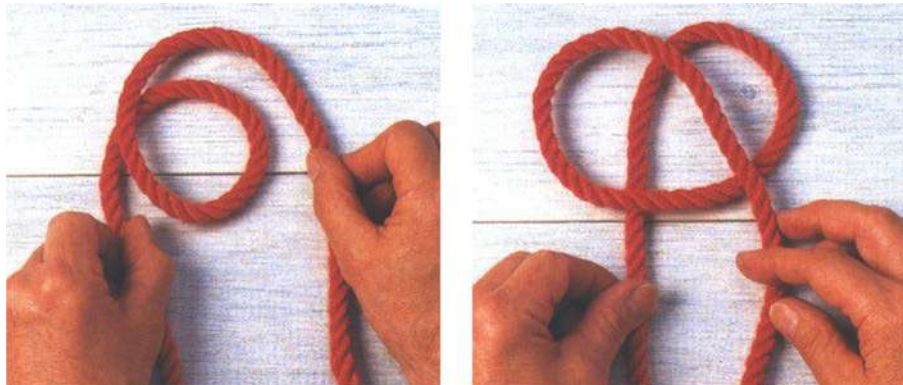
These alternative methods will eliminate the need for clips.

### Loop and Button Knot

This method secures the belt by having a loop at one end of the belt, pass behind and over a button knot at the other end.

#### Steps for the Loop and Button Knot Method

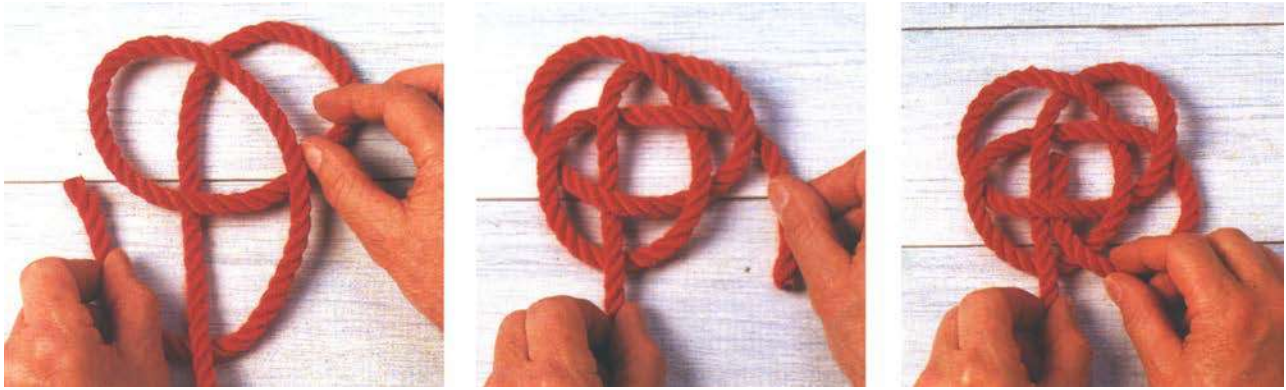
1. Make a button knot as follows:
  - (a) Cut a 30 cm (12 inch) line.
  - (b) Make a clockwise overhand loop.
  - (c) Bring the working end down over the original loop and arrange in a pretzel layout.



*Note. From The Ultimate Encyclopedia of Knots and Ropework (p. 227), by G. Budworth, 2001, London, England: Anness Publishing Limited. Copyright 1999 by Anness Publishing Limited.*

Figure B-1 Steps 1b and 1c

- (d) Pass the working end around, from right to left, behind the standing part.
- (e) Tuck the working end through the knot in a clockwise direction. The tucks will follow an over and under pattern through the knot.
- (f) Tuck the working end alongside and parallel to the standing part.



*Note. From The Ultimate Encyclopedia of Knots and Ropework (p. 227), by G. Budworth, 2001, London, England: Anness Publishing Limited. Copyright 1999 by Anness Publishing Limited.*

Figure B-2 Steps 1d–1f

- (g) Follow the original lead through the knot to double it.
- (h) Carefully tighten the knot to form a button. Leave one bight loose so that it extends from the knot for 3 cm (1 inch).



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure B-3 Steps 1g and 1h

- 2. Perform the steps for making the boatswain's belt with the following changes:
  - (a) Leave the line middled without attaching the clip in Step 3 in the instructional guide.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure B-4 Step 2a



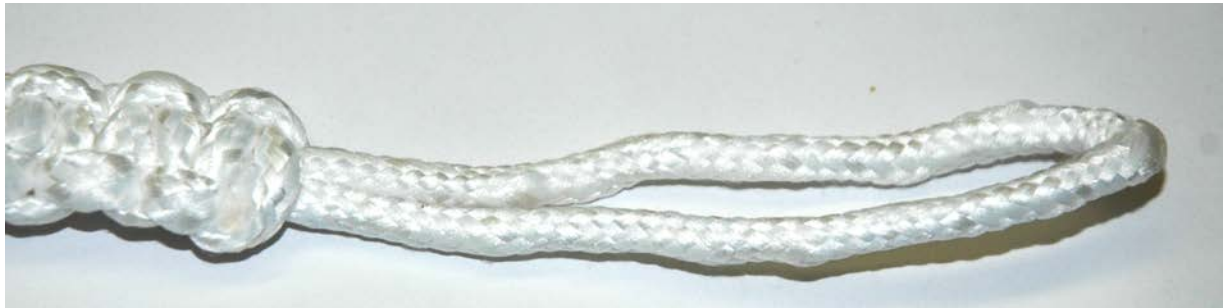
- (b) Slip the button knot onto the core at the measurement in Step 5 in the instructional guide.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure B-5 Step 2b

- (c) Leave enough of the core uncovered so that the loop will fit around the button.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure B-6 Step 2c

3. Connect the belt by passing the free loop behind and around the button knot.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure B-7 Step 3

### **Loop and Toggle Method**

This method secures the belt by having a toggle fitted at one end of the belt that fits through a loop at the other.

#### **Steps for the Loop and Toggle Method**

1. Perform the steps for making a boatswain's belt with the following changes:
  - (a) Leave the line middled without attaching the clip in Step 3 of the instructional guide.
  - (b) Attach the toggle onto the core at the measurement in Step 5 of the instructional guide.
  - (c) Leave a loop uncovered so that it will fit over the toggle.
2. Connect the belt by passing the free loop over the toggle.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure B-8 Loop and Toggle

### **Loop and Carabiner Method**

This method secures the belt by having a loop at each end of the belt attached with a carabiner.

#### **Steps for the Loop and Carabiner Method**

1. Perform the steps for making a boatswain's belt with the following changes to the steps outlined in the instructional guide:
  - (a) Leave the line middled without attaching the clip in Step 3 of the instructional guide.
  - (b) Attach the carabiner to the core at the measurement in Step 5 of the instructional guide.
  - (c) Leave a loop uncovered so that it will fit over the carabiner.
2. Connect the belt by opening the gate on the carabiner and passing the free loop over it.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure B-9 Loop and Carabiner

THIS PAGE INTENTIONALLY LEFT BLANK



**ROYAL CANADIAN SEA CADETS**  
**PHASE FOUR**  
**INSTRUCTIONAL GUIDE**



**SECTION 2**  
**EO C421.02 – MAKE A ROUND MAT**

---

Total Time: 90 min

---



---

**PREPARATION**

---

**PRE-LESSON INSTRUCTIONS**

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-604/PG-001, *Phase 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.

Create an overhead slide of the figure located at Attachment A.

Photocopy the round mat patterns located at Attachment B and Attachment C for each cadet.

**PRE-LESSON ASSIGNMENT**

Nil.

**APPROACH**

An interactive lecture was chosen for TP 1 to introduce the use of a knot-weaving board for making a round mat.

A demonstration and performance was chosen for TP 2 as it allows the instructor to demonstrate making a round mat while providing an opportunity for the cadets to practice this skill under supervision.

---

**INTRODUCTION**

---

**REVIEW**

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall have made a round mat.

**IMPORTANCE**

Making a round mat will be beneficial to the cadets as new concepts used in more advanced knot work are introduced in a fun and challenging way.

**Teaching Point 1****Explain the set-up of a knot-weaving board.**

Time: 10 min

Method: Interactive Lecture

**KNOT WEAVING****Introduction**

As cord mats become more complicated, it becomes difficult to keep track of where cords are to be woven. One method of weaving intricate mats is the use of a knot-weaving board. The board consists of wood, cork or cardboard that allows a mat pattern to be affixed by pins or nails. The cord is woven around the pins following a given pattern which indicates direction and where cords will cross under or over each other. The pins maintain the desired shape of the mat until it is complete.



The round mat chosen for this lesson is a flattened Turk's head knot that is used as the logo for the International Guild of Knot Tyers (as illustrated in Figure 1). This simple mat will introduce the basic concepts used to make larger, more intricate mats. Once complete, this mat can be used as a hot or cold trivet.



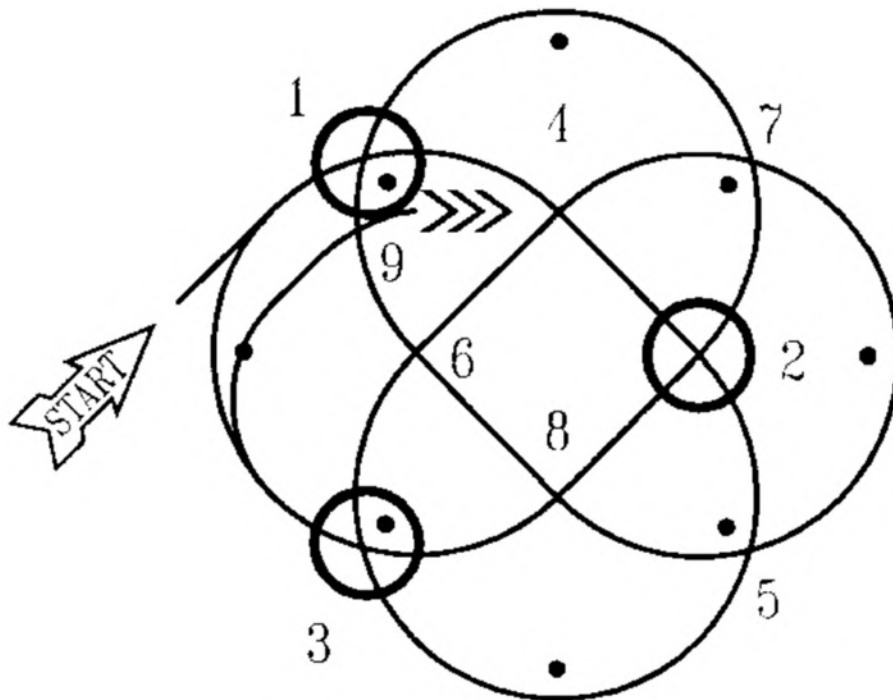
*Note. Created by Director Cadets 3, 2007, Ottawa, ON: Department of National Defence.*

Figure 1 Completed Round Mat

## Mat Patterns

To make mat weaving easier, a series of arrows, dots, circles, lines and numbers are used on the mat patterns. They are as follows:

- The numbers are placed at alternate crossings on the diagram and are to be followed consecutively during the weaving process.
- A circle at a crossing indicates an underpass of a cord already there.
- A crossing with no circle indicates an overpass of a cord already there.
- An outlined arrow with the word "START" indicates the starting position and the initial direction for the lay of the cord.
- A feathered arrow indicates the end of the pattern.
- Small dots on the pattern indicate the turning points and the placement of pins.



*Note. From Fancy Knotting: An Introduction (p. 11), by David Fukuhara, 2002, Vancouver, BC: David Fukuhara.*

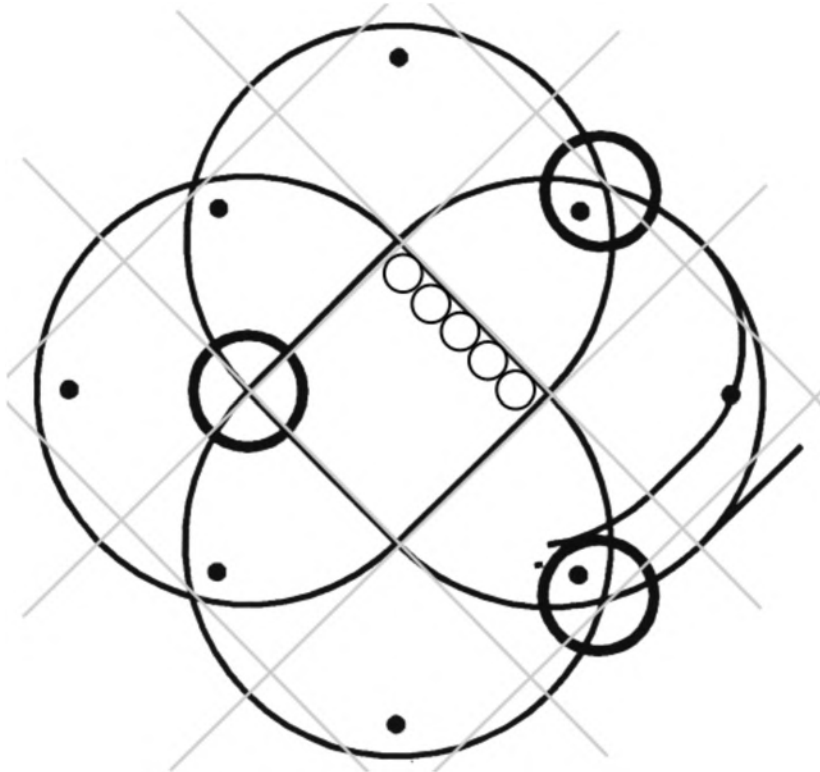
Figure 2 Typical Mat Pattern

## Scaling a Pattern

Each mat pattern is drawn on a square grid. This allows for visualization of the mat pattern and easy identification of which crossover points are overpasses and which are underpasses.



Place the slide located at Attachment A on an overhead projector.



*Note. Created by Director Cadets 3, 2007, Ottawa, ON: Department of National Defence.*

Figure 3 Pattern Grid

By scaling the size of the squares, the pattern can be used for different sizes of line. The sides of squares should be roughly five cord diameters in length. The following guide may be used:

Diameter of cord	Length of square's side*
4 mm (3/16 inch)	20 mm (3/4 inch)
6 mm (1/4 inch)	30 mm (1 1/4 inch)
9 mm (3/8 inch)	45 mm (1 7/8 inch)
12 mm (1/2 inch)	60 mm (2 1/2 inch)

\*Based on a 3 lead pattern. To change the number of leads in the pattern, add or subtract a cord diameter from the side measurement accordingly.

*Note. Created by Director Cadets 3, 2007, Ottawa, ON: Department of National Defence.*

Figure 4 Pattern Scaling Chart



The term "lead" refers to a cord that follows the mat pattern to completion. For example, a three-lead mat has the cord following the pattern to completion three times.

### Length of Cord

The length of cord required to weave the mat can be determined before weaving. With the pattern on the knot-weaving board, put a pin at each turning point. Pin one end of the uncut cord at the starting point. Lay the cord on the pattern following the numbers from start to finish ignoring the underpasses. Mark this length with a piece of tape. After removing the cord, cut a length of cord equal to three times this measurement and add 30 cm (12 inches). The extra length will allow for hiding the ends in the middle of the mat.



---

**CONFIRMATION OF TEACHING POINT 1**


---

**QUESTIONS:**

- Q1. What is the purpose of a knot-weaving board?
- Q2. How is an underpass marked on a pattern?
- Q3. What is the general rule for scaling a pattern?

**ANTICIPATED ANSWERS:**

- A1. To visually track where cords are to be woven.
- A2. A circle around the crossover point.
- A3. The sides of the grid should be five cord diameters in length.

**Teaching Point 2****Demonstrate and have the cadets make a round mat.**

Time: 70 min

Method: Demonstration and Performance



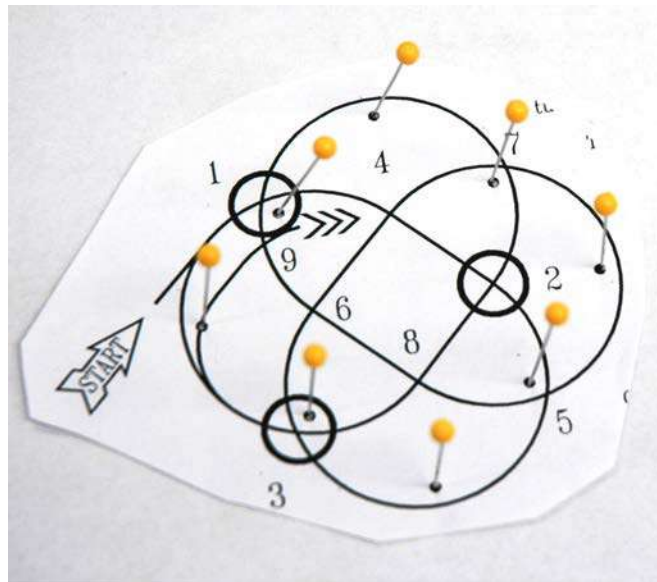
Distribute the round mat pattern located at Attachment B to each cadet.

Distribute a length of cord to each cadet.

Demonstrate each step and have the cadets follow along.

**STEPS TO MAKING A ROUND MAT (WEAVING METHOD)**

1. Cut out the round mat pattern.
2. With the pattern on a knot-weaving board, put a straight pin at each turning point (as illustrated in Figure 5).

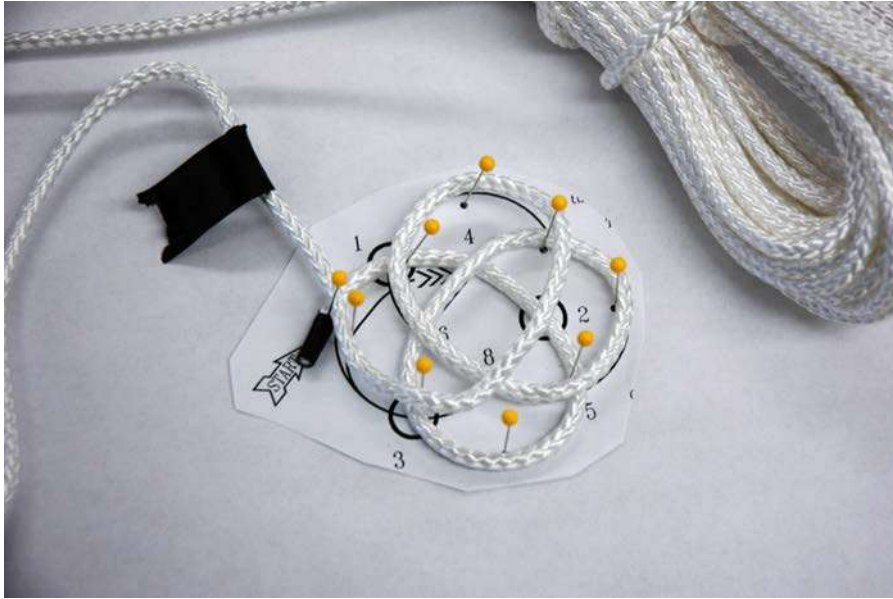


*Note. Created by Director Cadets 3, 2007, Ottawa, ON: Department of National Defence.*

Figure 5 Step 2

12-C421.02-5

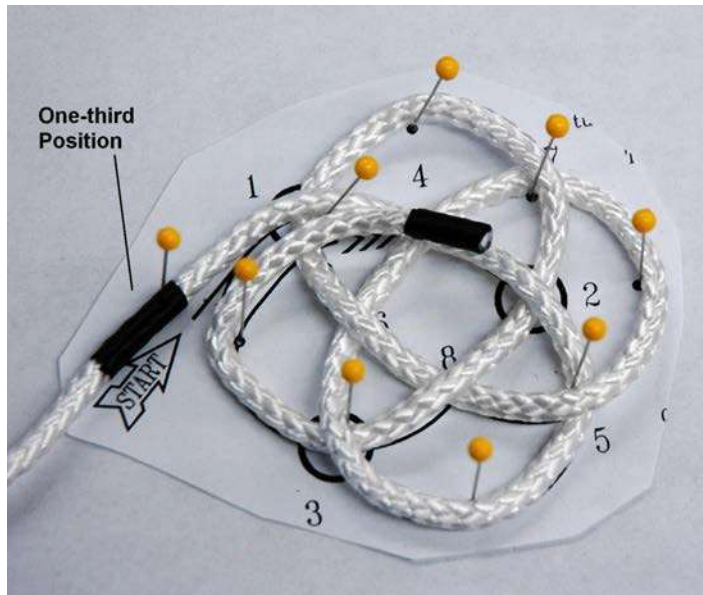
3. Lay the cord onto the pattern following the numbers from start to finish ignoring the underpasses (as illustrated in Figure 6). Mark the one-third position and remove the cord from the pattern. Cut the cord to a length equal to three times the one-third length plus 30 cm (12 inches).



*Note. Created by Director Cadets 3, 2007, Ottawa, ON: Department of National Defence.*

Figure 6 Step 3

4. Pin the cord's one-third position onto the outlined arrowhead at the starting point (as illustrated in Figure 7).
5. Lay the shorter length of cord onto the pattern following the numbers. At the turns, lay the cord around the pins and continue (as illustrated in Figure 7). Pay attention for the underpasses at crossings with circles.



*Note. Created Director Cadets 3, 2007, Ottawa, ON: Department of National Defence.*

Figure 7 Step 5

6. When the cord is back to crossing number 1, the initial tying sequence is complete. Check to ensure that the over and under sequence has been maintained from start to finish.

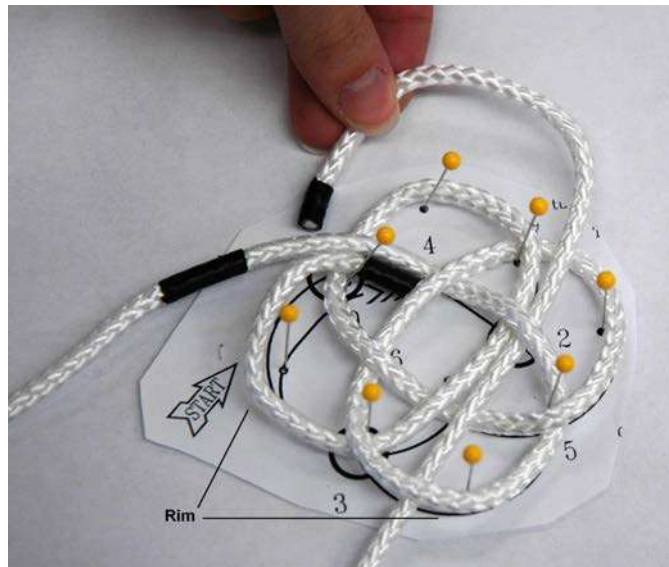


Any errors must be corrected now.



Once the initial lay of cord is complete, the pattern is no longer required.

7. Lay the remaining two-thirds of the cord following the previously laid cord in the opposite direction (as illustrated in Figure 8).



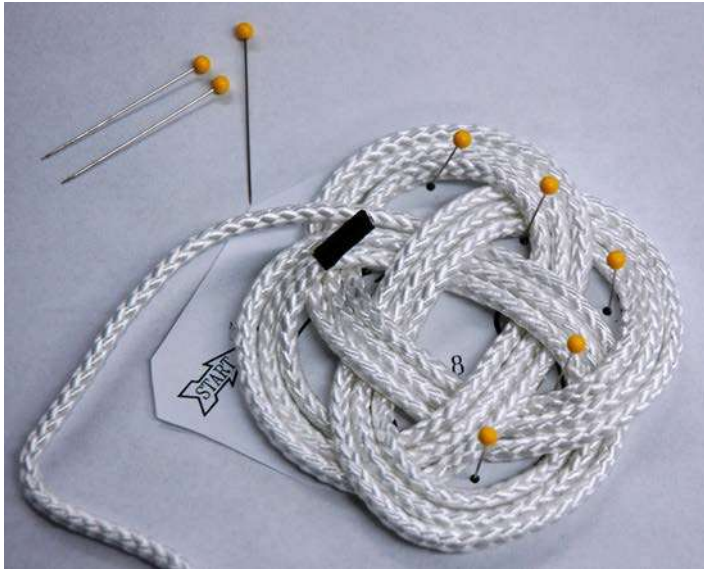
*Note. Created by Director CAdeets 3, 2007, Ottawa, ON: Department of National Defence.*

Figure 8 Step 7



Avoid drawing or pulling the cord tight as this will cause the mat to curl up at the rim or on the corners.

8. When there are three leads, remove the pins from the corkboard (as illustrated in Figure 9).



*Note. Created by Director Cadets 3, 2007, Ottawa, ON: Department of National Defence.*

Figure 9 Step 8

9. To finish the mat, the cord can be glued to its adjacent cord for about four cord diameters and the excess cord can be trimmed (as illustrated in Figure 10).



*Note. Created by Director Cadets 3, 2007, Ottawa, ON: Department of National Defence.*

Figure 10 Step 9



An alternative to finishing larger diameter cord is to sew the cord to its adjacent cord for about four cord diameters, whip the ends and trim the excess.



The cadets may start the additional round mat pattern located at Attachment C if there is time remaining in this period.

---

### CONFIRMATION OF TEACHING POINT 2

---

The cadets' making a round mat will serve as the confirmation of this TP

---

### END OF LESSON CONFIRMATION

---

The cadets' making a round mat will serve as the confirmation of this lesson.

---

### CONCLUSION

---

### HOMEWORK / READING / PRACTICE

The cadets may complete the additional round mat pattern located at Attachment C.

### METHOD OF EVALUATION

Nil.

### CLOSING STATEMENT

Mat weaving is an integral part of advanced ropework. The concepts introduced in this lesson lay the foundation for creating more complicated mats that may be used within the cadet program.

### INSTRUCTOR NOTES / REMARKS

If time and resources permit, the instructor can be creative and demonstrate other methods of making the round mat.

---

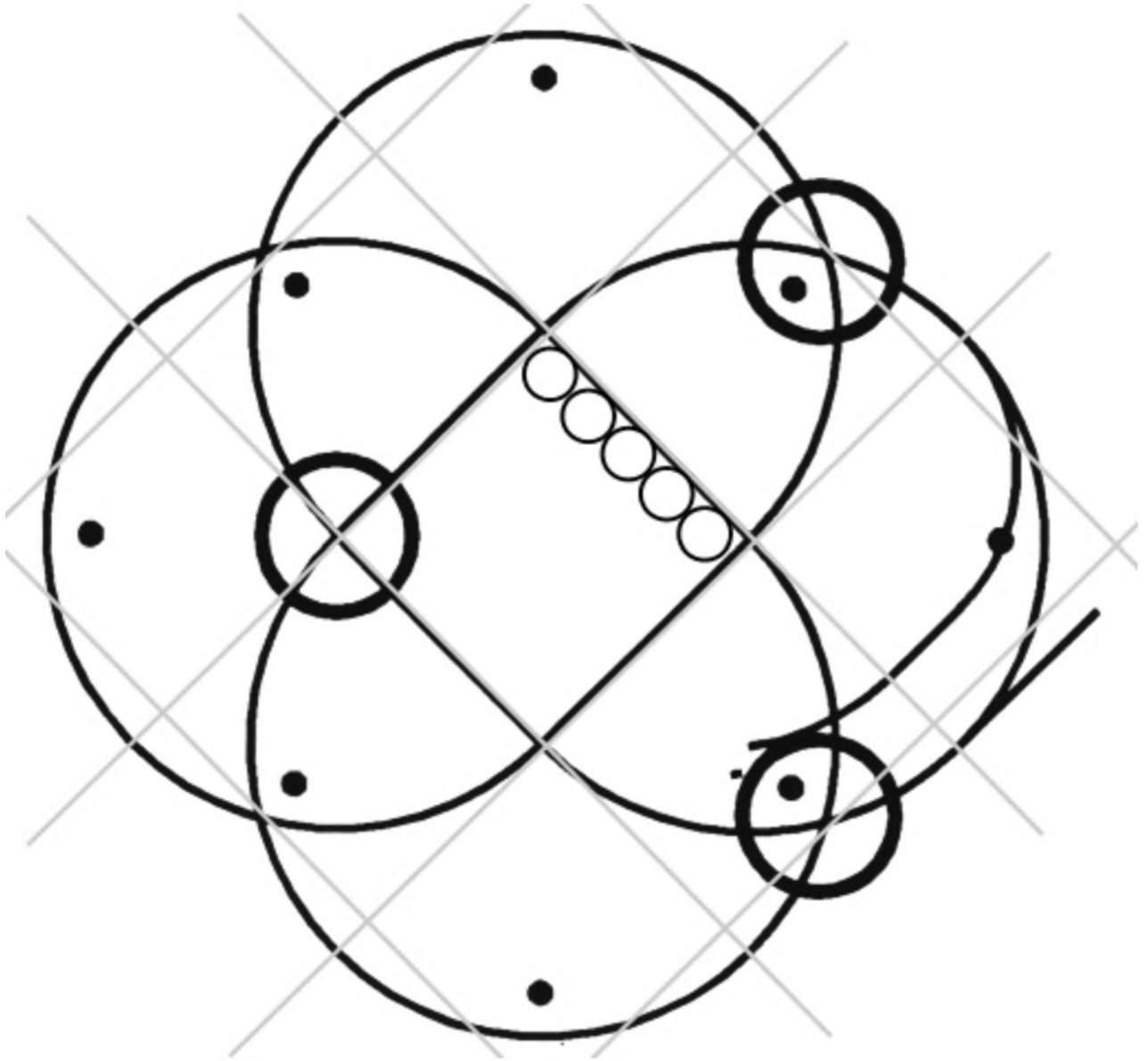
### REFERENCES

---

C1-064 ISBN 1-55267-986-1 Budworth, G. (2001). *The ultimate encyclopedia of knots & ropework*. London, England: Anness Publishing Limited.

C1-102 David Fukuhara. (2002). *Fancy knotting: An introduction*. Vancouver, BC: David Fukuhara.

THIS PAGE INTENTIONALLY LEFT BLANK

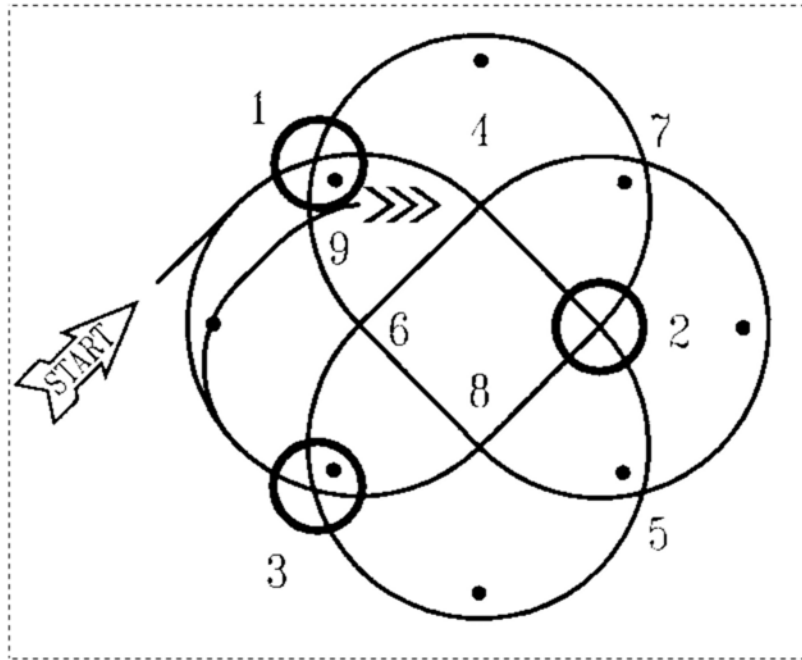


Pattern Grid

THIS PAGE INTENTIONALLY LEFT BLANK

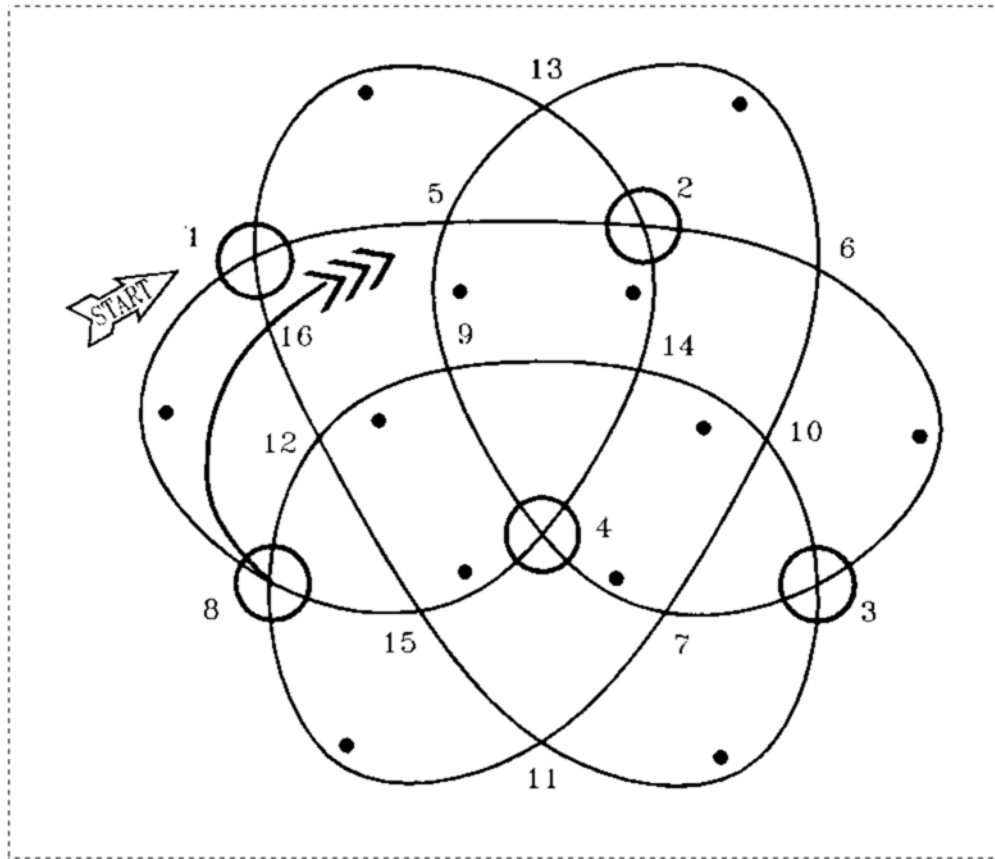


### ROUND MAT PATTERN



THIS PAGE INTENTIONALLY LEFT BLANK

### ADDITIONAL ROUND MAT PATTERN



THIS PAGE INTENTIONALLY LEFT BLANK



## ROYAL CANADIAN SEA CADETS

### PHASE FOUR INSTRUCTIONAL GUIDE



#### SECTION 3

#### EO C421.03 – MAKE A NET HAMMOCK

---

Total Time: 90 min

---



---

#### PREPARATION

---

##### PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-604/PG-001 *Phase 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.

##### PRE-LESSON ASSIGNMENT

Nil.

##### APPROACH

Demonstration and performance was chosen for this lesson as it allows the instructor to explain and demonstrate making a hammock while providing an opportunity for the cadets to practice these skills under supervision.

---

#### INTRODUCTION

---

##### REVIEW

Nil.

##### OBJECTIVES

By the end of this lesson the cadet shall be expected to make a net hammock.

##### IMPORTANCE

It is important for cadets to use seamanship skills in real life situations. Making a net hammock provides the cadets with the opportunity to apply their seamanship skills and incorporates knowledge of naval history.

**Teaching Point 1****Explain, demonstrate and have the cadets make two hammock harnesses.**

Time: 30 min

Method: Demonstration and Performance

**USE OF A HAMMOCK**

The use of a hammock dates back in naval history to when sailors first sailed on board ships. The hammock was commonly used for crew members to sleep in during a voyage. Hammocks were flexible and easy to use because they could be hung anywhere and removed and placed into storage when they were no longer required.



Demonstrate and have the cadets practice each step in making the hammock harness.

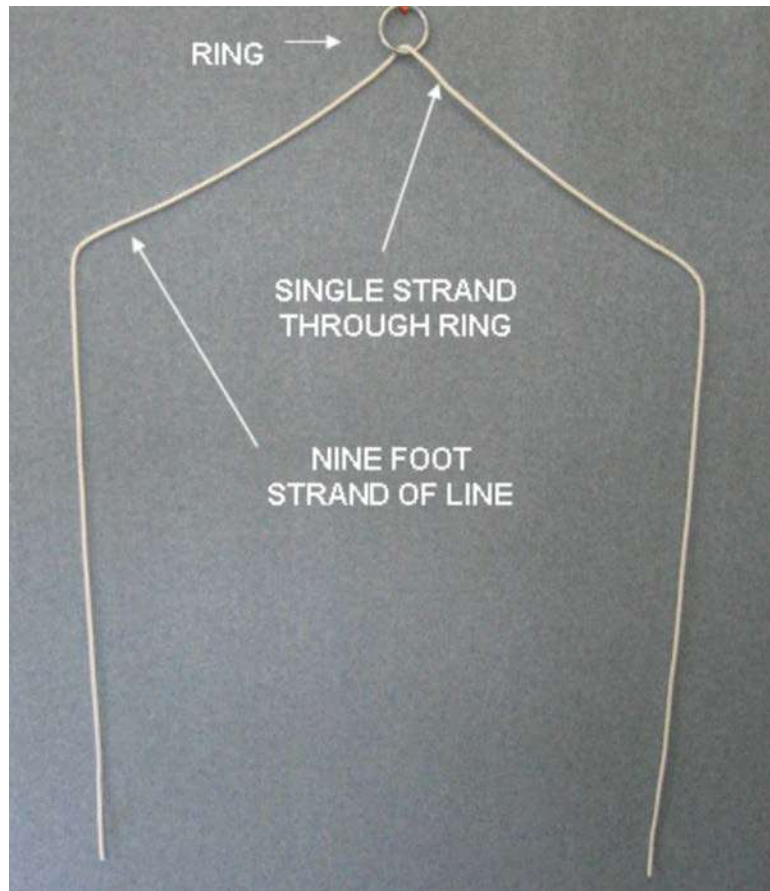
**STEPS FOR MAKING A HAMMOCK HARNESS**

1. Cut seven lengths of cord at nine feet long for the first harness.



All lines should be cut so they will not fray. With synthetic lines, the use of an electric rope cutter or propane torch and hot-knife is recommended.

2. Pass the seven lengths through the ring so that the centre of each strand rests on the ring (as illustrated in Figure 1).



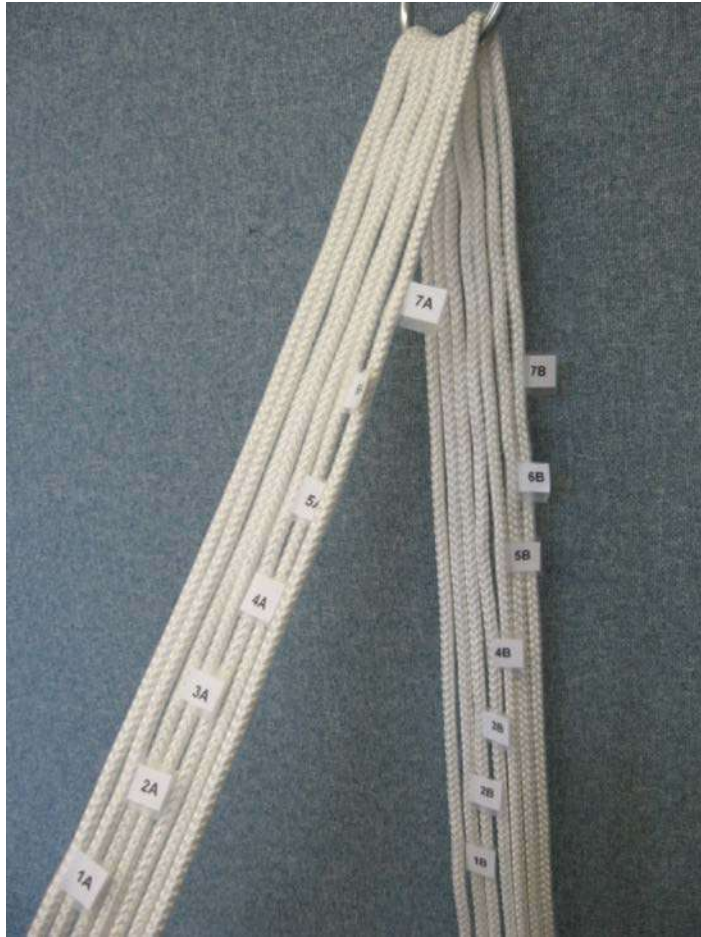
*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 1 Strands Through the Ring

3. Number the strands 1 through 7 (left to right) with the front part of each strand labelled A and the back part of each strand labelled B (as illustrated in Figure 2).



A detailed explanation of front and back positions in relation to the harness strands is located at Attachment B.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 2 Numbering the Strands

4. Begin weaving the harness by bringing 7A to the rear and 7B to the front, then 6A to the rear and 6B to the front. Continue until all strands labelled A are to the rear and all strands labelled B are to the front (as illustrated in Figure 3).





*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 3 Beginning the Weave Step 4

5. Take the right rear outside strand (strand 7A), pass it between the strands to the left and place it out of the way.
6. Take the left front outside strand (strand 1B), pass it between the strands to the right and place it out of the way (as illustrated in Figure 4).



When moving the strands from the front to back and back to front, ensure they stay in the correct numbered sequence. This will ensure accurate weaving of the harness.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 4 Passing the Strands Steps 5 and 6

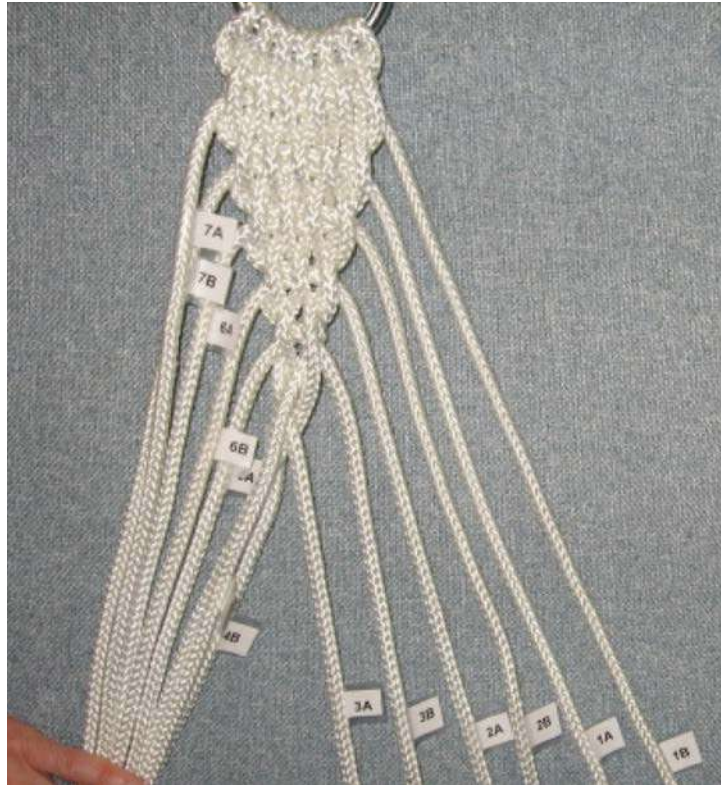
7. Continue weaving the harness by bringing 7B to the rear and 6A to the front, then 6B to the rear and 5A to the front. Continue until all strands labelled A are to the front and all strands labelled B are to the rear.
8. Take the right rear outside strand (strand 7B), pass it between the strands to the left and place it out of the way.
9. Take the left front outside strand (strand 1A), pass it between the strands to the right and place it out of the way (as illustrated in Figure 5).



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 5 Passing the Strands Steps 6 through 9

10. Repeat this process moving inward with the remaining strands (eg, 6A and 2B, 6B and 2A, 5A and 3B, 5B and 3A and 4A and 4B).



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 5 No More Strands to Weave

11. Upon completion of strands 5B and 3A being passed through the middle, tie the remaining strands 4A and 4B together with a reef knot to finish the harness (as illustrated in Figure 6).



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 6 Completing the Weaving

12. To complete the harness, pull all of the weaving taut and close up any gaps (as illustrated in Figure 7).



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 7 Tightening the Weave

13. Repeat Steps 1–13 to create the second harness required for the hammock.

---

### CONFIRMATION OF TEACHING POINT 1

---

The cadets' making of hammock harnesses will serve as the confirmation of this TP.

#### Teaching Point 2

**Explain, demonstrate and have the cadets prepare hammock materials.**

Time: 50 min

Method: Demonstration and Performance



Demonstrate and have the cadets practice each step in cutting the netting to size.

#### CUTTING THE NETTING TO SIZE



The netting used in this IG was purchased locally. It is a replacement mesh for a hockey net. The finished size is approximately 1.5 m by 2.5 m and has a bolt rope attached around the outer edge. Only minor trimming is required.

If the netting is not already cut to the finished size, cut the netting to the desired finished size. Recommended size is approximately 1 m wide by 2 m long.

Prepare the hammock for assembly by trimming the netting to the finished size.

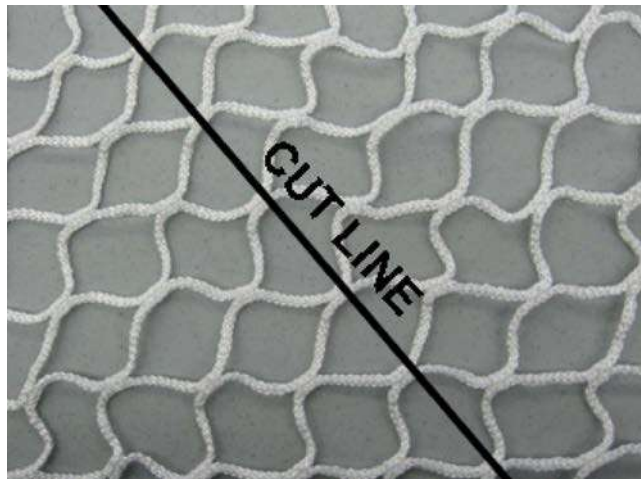
Cutting tools may differ depending on the netting being used. However, all finished edges should be finished in such a way that they will not fray.



All lines should be cut so they will not fray. With synthetic lines, the use of an electric rope cutter or propane torch and hot-knife is recommended.

### Ideal Mesh Direction

When preparing to cut the mesh, consider the direction of the mesh. The mesh should run on a diagonal (as illustrated in Figure 8) because mesh cut diagonally will provide more stability and strength to the hammock.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 8 Mesh Cut Diagonally

### ATTACHING THE SIDE CHAINS

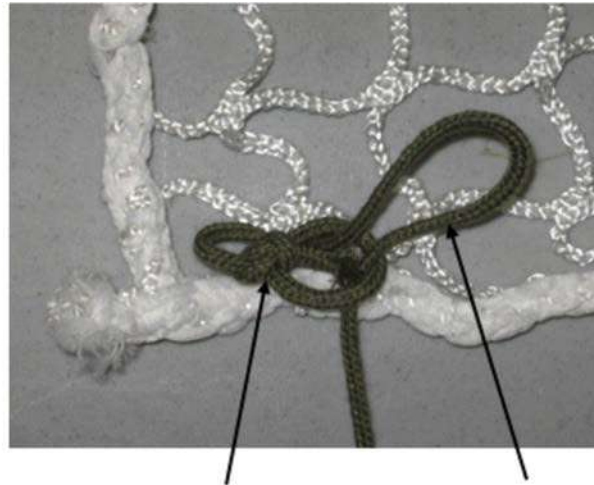
Side chains on a hammock are used to provide lateral support to the netting and will also help in the strength of the hammock. Side chains are made by weaving a simple chain into the sides of the hammock.



Instructions to make a simple chain are located at Attachment C.

### Steps to Attach Side Chains

1. Start the side chain by tying a bowline in one end and starting the simple chain in the first mesh (as illustrated in Figure 9).



**BOWLINE**

**LOOP TO START SIMPLE CHAIN**

*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 9 Starting the Side Chain



Side chains should be woven into every mesh in order to provide adequate support to the netting.

The line used to make the side chains can be estimated at 4 times the length of the hammock side, eg, 2 m long times 4 equals 8 m.

2. Attach the simple chain at each mesh on the hammock (as illustrated in Figure 11).



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 11 Attaching the Side Chain to the Netting

3. Finish the side chain by choking the loop and placing the running end through the previous chain loop (as illustrated in Figure 12). Trim any excess line.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 12 Finishing the Side Chain

- Repeat Steps 1–4 for the second side chain.

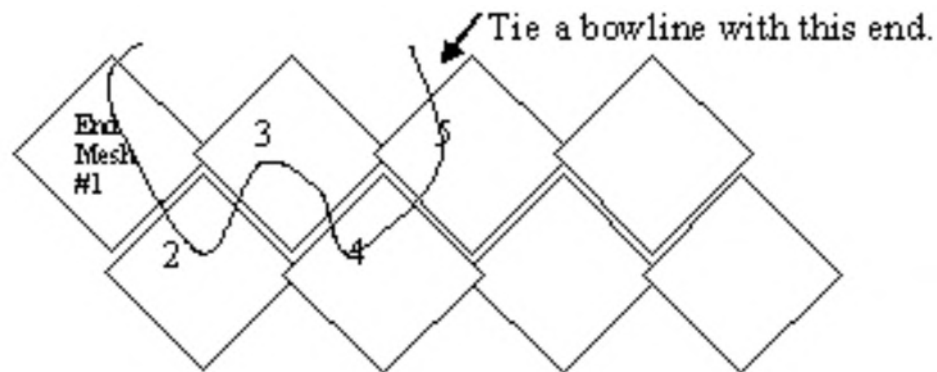
### **ATTACHING THE HARNESS TO THE BODY OF THE HAMMOCK**

Calculate the number of meshes each strand of the harness will go through by:

- counting the number of meshes (openings in the net); and
- divide the number of meshes by the number of strands in the harness, which is 14.

Example: 42 meshes divided by 14 equals 3 meshes. This number may need to be adjusted so that it is always a whole number.

When attaching the harness to the mesh, the strands will go through the top 3 meshes as well as two adjoining meshes underneath for strength (as illustrated in Figure 13).

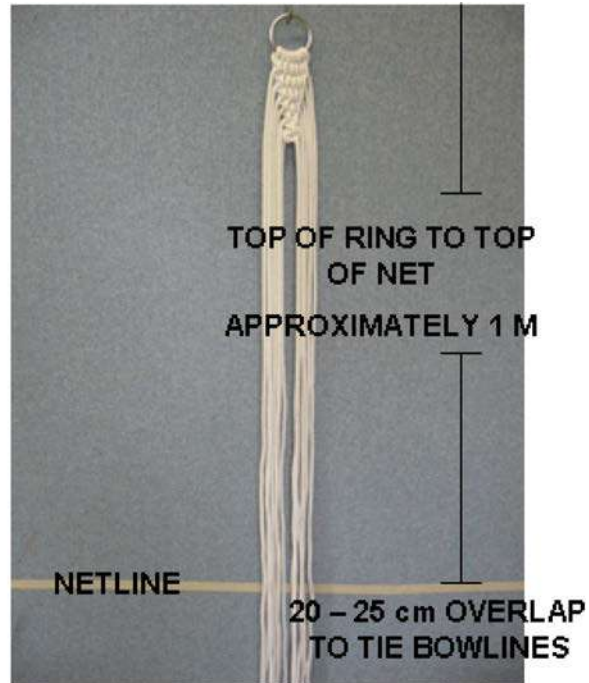


*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 13 Weaving the Harness into the Netting

### **Steps to Attaching the Strands to the Netting**

- Hang the harness and make a measurement approximately 1 m from the top of the ring (as illustrated in Figure 14). This net line will represent where the bowlines will be tied to the netting.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 14 Prepare to Attach the Harness to the Netting



It is important to ensure the strands are tied at the same length. The strands should overlap the netting by approximately 21–25 cm (as illustrated in Figure 15).





*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 15 Strand Overlap Onto Netting

2. Weave the outside strand through the mesh of the netting to include the eye of the side chain (as illustrated in Figure 16).



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 16 Attaching the Outside Strands Through the Mesh Steps 2 and 3

3. Secure the strand to the mesh with a bowline (as illustrated in Figure 17).



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 17 Attaching the Strands Through the Mesh Step 3

4. Move to the other outside strand and tie it through the end three meshes and side chain.
5. Alternating sides of the harness, continue moving inward to the next strand (as illustrated in Figure 18) until all strands are secured to the netting with a bowline tied tightly.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 18 Inside Strand Through Three Meshes

6. Repeat Steps 1–5 for the second harness.
7. Trim all excess line from tied bowlines. The running end of the bowline should not reach further than the bottom eye of the bowline (as illustrated in Figure 19).



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 19 Trimmed Bowline

## HANGING THE HAMMOCK

Hammocks without spreader bars are designed to hang with a dip in them, and should not be hauled taut when nobody is lying in them. The optimal hanging distance for hammocks without spreader bars is 3.5–5 m.

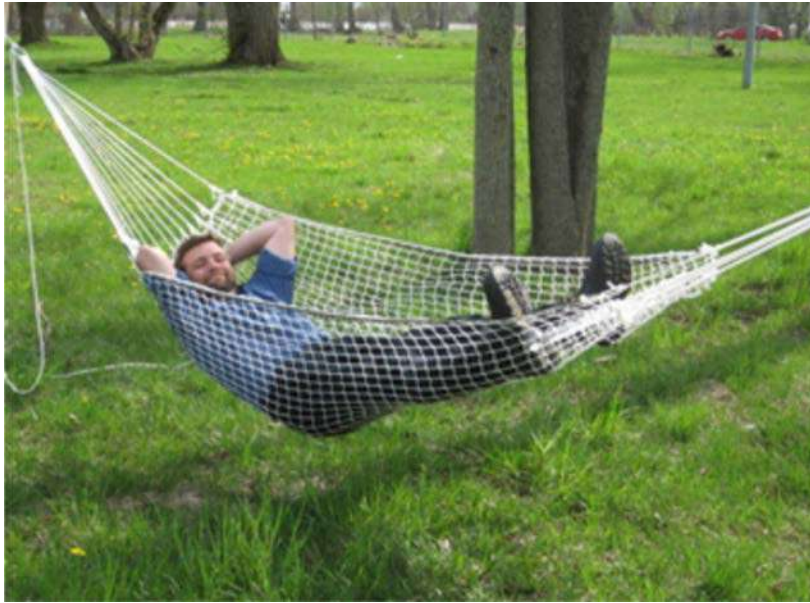
The optimal height for hanging a net hammock without spreader bars is 0.5–1 m off the ground. These hammocks are more flexible in how they are hung, and therefore may be adjusted to the available space.



Every hammock may hang differently from the others. Adjustments will have to be made to suit personal preference and comfort.

## Attaching the Hammock to a Tree

In order to attach a hammock to a tree, use a strop that has been choked around the tree at the desired distance (as illustrated in Figure 20). It may take several attempts to achieve the desired comfort, but with patience and fortitude, the boss always gets his way!



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 20 Attaching the Hammock to a Tree

---

### CONFIRMATION OF TEACHING POINT 2

---

The cadets' preparing the hammock material will serve as the confirmation of this TP.

---

### END OF LESSON CONFIRMATION

---

The cadets' completion of a hammock will serve as the confirmation of this lesson.

---

### CONCLUSION

---

### HOMEWORK / READING / PRACTICE

Nil.

### METHOD OF EVALUATION

Nil.

### CLOSING STATEMENT

Making a net hammock uses many seamanship skills by combining multiple types of knot work. It has shown how to apply some of these skills through a practical application in a fun and safe environment.

### INSTRUCTOR NOTES / REMARKS

Nil.

---

### REFERENCES

---

C1-187 Earth Guild: A Netshops Company. (1998). *How to make your own hammock*. Retrieved February 16, 2009, from <http://www.hammocks.com/howtomakeyourownhammockarticle.cfm>

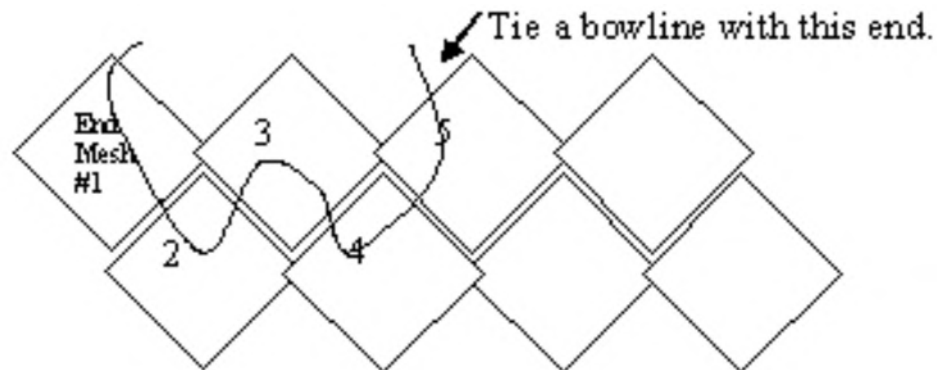
### INSTRUCTIONS FOR ATTACHING A HAMMOCK HARNESS

Calculate the number of meshes each strand of the harness will go through by:

1. counting the number of meshes (openings in the net); and
2. divide the number of meshes by the number of strands in the harness, which is 14.

Example: 42 meshes divided by 14 equals 3 meshes. This number may need to be adjusted so that it is always a whole number.

When attaching the harness to the mesh, the strands will go through the top 3 meshes as well as two adjoining meshes underneath for strength (as illustrated in Figure A-1).



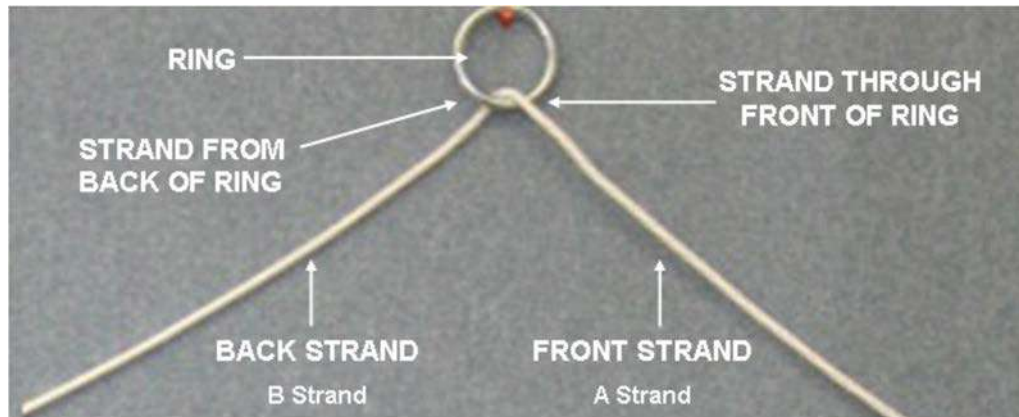
*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure A-1 Weaving the Harness into the Netting

THIS PAGE INTENTIONALLY LEFT BLANK

## DETAILED EXPLANATION OF FRONT AND BACK IN RELATION TO HARNESS STRANDS

After strands are passed through the ring, they can be referred to as front or back strands.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure B-1 Strand Through the Ring



When moving the strands from the front to back and back to front, ensure they stay in the correct numbered sequence. This will ensure accurate weaving of the harness.

THIS PAGE INTENTIONALLY LEFT BLANK



### STEPS TO TYING A SIMPLE CHAIN

1. Make a counter-clockwise overhand loop in one end of the line (as illustrated in Figure C-2).
2. The working end will be the end crossing on top of the line. Lay the working end beneath the loop and pull a bight through it from back to front; then pull the resulting knot taut (as illustrated in Figure C-1).



*Note. From The Ultimate Encyclopedia of Knots and Ropework (p. 238), by G. Budworth, 2001, London, England: Anness Publishing Limited. Copyright 1999 by Anness Publishing Limited.*

Figure C-1 Steps 1 and 2 of the Simple Chain

3. Pull a second loop in the working end through the first bight and pull it taut (as illustrated in Figure C-2).
4. Continue with consecutive loops, pulling each one taut (as illustrated in Figure C-2).



*Note. From The Ultimate Encyclopedia of Knots and Ropework (p. 238), by G. Budworth, 2001, London, England: Anness Publishing Limited. Copyright 1999 by Anness Publishing Limited.*

Figure C-2 Steps 3 and 4 of the Simple Chain

5. To finish (close) the chain, tuck the working end through the preceding bight to secure the chain (as illustrated in Figure C-3).



*Note. From The Ultimate Encyclopedia of Knots and Ropework (p. 238), by G. Budworth, 2001, London, England: Anness Publishing Limited. Copyright 1999 by Anness Publishing Limited.*

Figure C-3 Step 5 of the Simple Chain

THIS PAGE INTENTIONALLY LEFT BLANK

**CHAPTER 13**

**PO 422 – ATTAIN THE RESTRICTED RADIO OPERATOR'S CERTIFICATE  
(MARITIME) (ROC[M]) WITH DIGITAL SELECTIVE CALLING (DSC) ENDORSEMENT**





**ROYAL CANADIAN SEA CADETS**

**ALL TRAINING LEVELS**

**INSTRUCTIONAL GUIDE**

**SHIPS OPERATIONS**



**PO 422 – ATTAIN THE RESTRICTED RADIO OPERATOR'S CERTIFICATE  
(MARITIME) (ROC[M]) WITH DIGITAL SELECTIVE CALLING (DSC) ENDORSEMENT**

---

Total Time:

---

The instructional guides for this PO are located in A-CR-CCP-922/PG-001, *Canadian Cadet Organizations Small Craft Operator Program (SCOP), Module 2 – Attain the Restricted Radio Operator's Certificate (Maritime) (ROC[M]) with Digital Selective Calling (DSC) Endorsement.*

THIS PAGE INTENTIONALLY LEFT BLANK

**CHAPTER 14**

**PO 423**







## ROYAL CANADIAN SEA CADETS

### PHASE FOUR

### INSTRUCTIONAL GUIDE



### SECTION 1

### EO M423.01 – IDENTIFY ASPECTS OF A CHART

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-604/PG-001, *Phase 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.

Review Chart 3441 *Haro Strait, Boundary Pass and / et Satellite Channel* to be familiar with the placing of the chart information referred to in this lesson.

Photocopy Attachment A for each cadet.

Set up the classroom or training area so that cadets can sit in pairs at tables suitable for chartwork.

Distribute one copy of Chart 3441 to each table.

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

An interactive lecture was chosen for this lesson to orient the cadets to information found on marine charts and generates an interest in small craft navigation.

### INTRODUCTION

#### REVIEW

Nil.

#### OBJECTIVES

By the end of this lesson the cadet shall have explained chart maintenance and identified the title block and other information found on a chart.

#### IMPORTANCE

It is important for cadets to identify aspects of a chart in order to properly select charts for passage planning. A successful passage plan begins with knowing how to interpret information found on the chart.

**Teaching Point 1****Describe how to care for and maintain a chart.**

Time: 10 min

Method: Interactive Lecture

**CARE AND MAINTENANCE OF A CHART**

There are two main types of paper charts available:

- **Lithographic.** These charts are mass printed on one side of large-format, durable paper. These charts are limited in the number and brightness of colours used.
- **Print On Demand (POD).** These charts are printed by the Canadian Hydrographic Service (CHS) when the charts are ordered. These charts are easily recognized by the bright white paper they are printed on and they have a coloured CHS logo. These charts are not as durable as traditional lithographic charts.

Charts are essential to navigation. Paper charts are available from many different sources and can be expensive to replace. With proper care, paper charts can last for many seasons. The following tips can extend the life of paper charts:

- **Keep the chart dry.** POD charts are significantly less durable than lithographic charts. However with either type of chart, make every effort to keep it dry at all times.
- **Storage.** When storing charts, it may be necessary to either roll or fold them and place them in a dry location. Whether the charts are rolled or folded depends on how much storage space is available.
  - **Folded charts.** Mainly used on large ships as there is sufficient room on board to store all of the charts in drawers. The biggest drawback to folding charts is they quickly become illegible and can tear easily at the folds.
  - **Rolled charts.** If there is not sufficient room to store folded charts, then rolling them is the best solution. Rolling is considered better than folding as the charts remain flat and straight.
- **Marking on a chart.** When making marks on the chart, always use a 2H pencil. Draw with light pressure on the pencil to avoid damaging the surface of the paper.
- **Scrubbing charts.** At the end of each day, the chart must be erased of all tracks, marks and notes. This allows for easy set up for the next navigation plan. Always use gum or white vinyl erasers on the charts. Many erasers have a very abrasive texture which can scrub away important information and damage the surface of the paper.



Additional information on pencils and erasers is given in EO M423.02 (Use Navigation Instruments).

**CONFIRMATION OF TEACHING POINT 1****QUESTIONS:**

- Q1. What should be remembered when marking on a chart?
- Q2. Why should only gum or white vinyl erasers be used on a chart?
- Q3. What are two ways to store a chart?

**ANTICIPATED ANSWERS:**

- A1. Use light pressure and a 2H pencil.
- A2. Certain types of erasers have an abrasive texture which could damage the surface of the chart.
- A3. Folded or rolled.

**Teaching Point 2**

**Describe and have the cadets find the chart title block and other information found on a chart.**

Time: 40 min

Method: Interactive Lecture



Have the cadets sit in pairs at tables with *Chart 3441* in front of them.

Have the cadets find the information as it is presented.

Emphasize the importance of knowing where to find the information on a chart rather than memorizing it.



The chart for this TP is *Chart 3441 Haro Strait, Boundary Pass and / et Satellite Channel*. The title block for this chart has been divided into two sections and placed on large land masses within the chart in order to avoid covering any navigation information.



Charts are oriented with true north at the top, east on the right-hand side, west on the left-hand side and south at the bottom.

**CHART TITLE BLOCK INFORMATION**

The following six items are illustrated in Figure 1.

The title block on a chart contains important information required for navigation in the area depicted.

**Chart title.** The name of the major navigational body of water in the area covered by the chart. The chart title is quoted along with the chart number when ordering charts.

Example: This chart is referred to as *Chart 3441 Haro Strait Boundary Pass and / et Satellite Channel*.

**Projection.** A statement of which type of chart projection was used to make the chart.

Example: *Chart 3441* uses Mercator projection.

**Scale of the chart.** The ratio of a unit of distance on the chart to the actual distance on the earth's surface.

Example: *Chart 3441* has a scale of 1 : 40 000; one inch on the chart equals 40 000 inches on the earth's surface.

There are two scales of charts that are mainly used in small craft navigation. These are:

- **Large-scale.** Cover a small area and show more detail of the earth's surface. These charts are best for navigating in coastal areas. Large-scale charts will have low scale ratios (eg, 1 : 5 000).
- **Small-scale.** Cover a large area of the earth's surface and show little detail. Small-scale charts will have high ratios (eg, 1 : 150 000).

**Depth measurement.** The unit of measurement for soundings and from which point they are taken.

Example: On *Chart 3441*, depths are measured in metres and are reduced to Chart Datum. (The reference for the Chart Datum is in Fulford Harbour located on Saltspring Island at the top of the chart).



**Chart Datum.** The plane of vertical reference to which all charted depths and drying heights are related. In non-tidal waters, it is also the vertical datum for elevations and clearances. It is chosen to show the least depth of water found in any place under "normal" meteorological conditions; it is a plane so low that the water level will seldom fall below it.

**Elevation measurement.** Can be either the height of both natural or man-made objects. The height of rocks and other features along the coastline are also defined.



**Spot elevation.** The height on a chart of the top of a hill or other natural feature.

**Higher High Water, Large Tide (HHWL).** The average of the highest high waters, one from each of 19 years of predictions.

**Clearances.** The vertical distance between HHWL and man-made objects such as overhead power cables and bridges.

Elevations on *Chart 3441* are given as:

- Spot elevations and clearances are in metres above HHWL.
- Underlined figures on drying areas or in brackets against drying features are in metres above Chart Datum.



Examples on *Chart 3441*:

**Spot elevation.** Mount (Mt.) Newton has an elevation of 305 m. (Located north of the CHS logo in the title block).

**Clearance.** Christmas Point (Pt.) power cable has a charted clearance of 55 m. (Located in the inset found in the lower left corner of the chart).

**Drying areas.** The foreshore of Island View Beach has a drying height of 1.5 m at Chart Datum. (Located west of the title block on the Saanich Peninsula).

**Drying features.** Two charted rocks in Sannichton Bay have charted heights of 2.1 m and 3.4 m (Located west of the chart title).

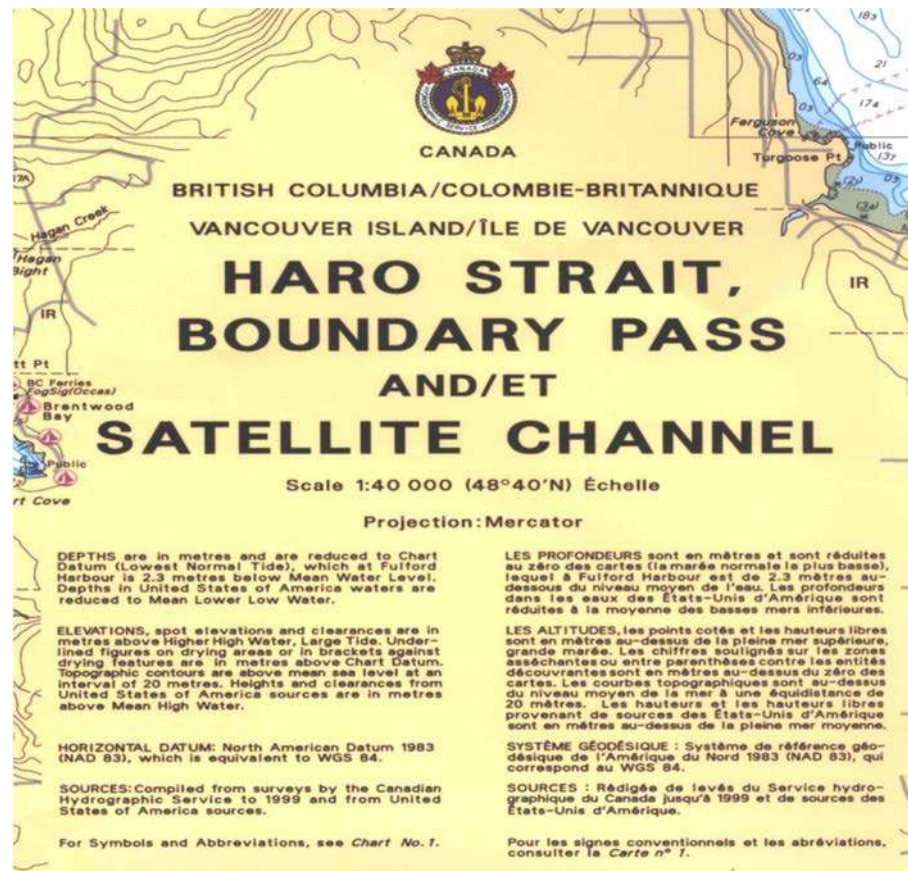
- **Sources.** A nautical chart is no more accurate than the survey on which it is based. Charting agencies make every effort to keep charts updated and accurate. Charts with older survey dates should be used with caution. Early surveys were often made under circumstances that did not permit accuracy and detail. Few surveys have been so thorough as to make certain that all dangers have been found. Everyday forces of wind and waves can change shorelines, channel directions or create uncharted shoals.

Example: *Chart 3441* is based on surveys made by CHS up to 1999 and sources from the United States of America (USA).



On August 7 1992, the passenger liner *Queen Elizabeth 2* (QE2), grounded on uncharted and previously unsurveyed rocks located to the south of Cuttyhunk Island, Massachusetts, USA. The most recent survey of this area prior to the grounding was 1939 for some of the area and 1888 for the rest.

The outdated survey data contributed to the Master of the QE2 plotting his course through an area which he would have avoided had he known the dangers existed. Further information can be found at: [http://www.maib.gov.uk/cms\\_resources/queen\\_elizabeth\\_2\\_pub\\_1993.pdf](http://www.maib.gov.uk/cms_resources/queen_elizabeth_2_pub_1993.pdf)



Note. From Chart 3441, *Haro Strait, Boundary Pass and / et Satellite Channel*, 2005, Ottawa, ON: Canadian Hydrographic Service

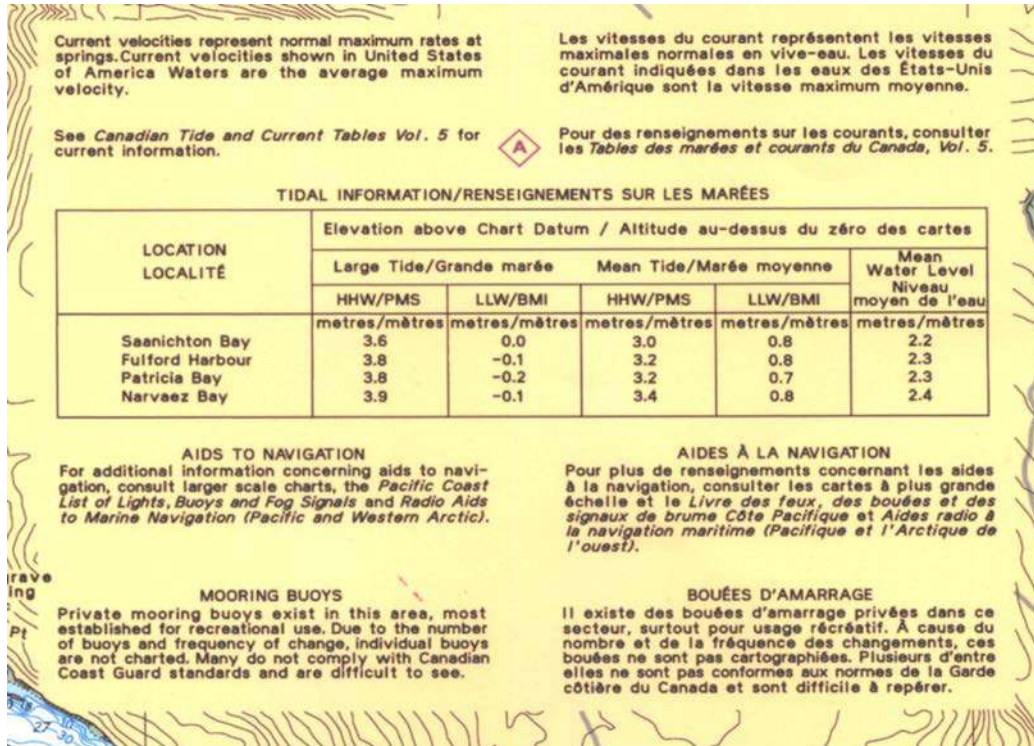
Figure 1 Chart Title Block Part One

- **Cautionary notes.** These notes outline specific navigational hazards to the area and should be read before using the chart to plan any navigational passage.

The cautionary notes found on *Chart 3441*:

- explain the meaning of special abbreviations used on the chart. Chart 3441 refers to Chart No. 1, which refers to *Symbols Abbreviations Terms (Chart 1)*;
- show special tidal and current information for the area (as illustrated in Figure 4);
- give information on aids to navigation found on the chart. *Chart 3441* refers to *Pacific Coast List of Lights, Buoys and Fog Signals* and *Radio Aids to Marine Navigation (Pacific and Western Arctic)* (as illustrated in Figure 2); and

- refer to anchorage areas or special moorings found in the area. This chart refers to private mooring buoys that do not comply with Canadian Coast Guard Regulations and may be difficult to see (as illustrated in Figure 2).



Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 2 Title Block Part Two

**OTHER INFORMATION FOUND ON A CHART**

It is important that all of the information printed on the chart is read prior to planning any navigation passages. Scan the chart for any information that has been printed on the margins, on large land areas or in different colours on the chart.

Information printed on *Chart 3441*, other than the information in the title block:

**Number and edition of the chart.** The chart number, edition information and the date the chart is corrected to are located in the margins of the chart.

Examples on *Chart 3441*:

- Chart number.** Located in the upper left and lower right-hand corners of the chart (as illustrated in Figure 3).
- Chart edition.** Previous editions of this chart are listed as well as the date of the newest edition available. In this case, the newest edition is dated July 1, 2005 (as illustrated in Figure 4).
- Correction dates.** This chart is corrected to Notice to Mariners dated October 10, 2008 (as illustrated in Figure 4).

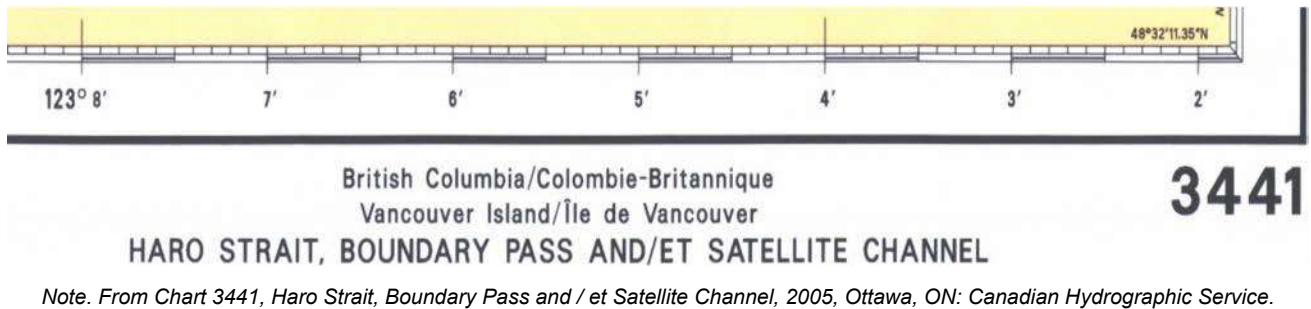
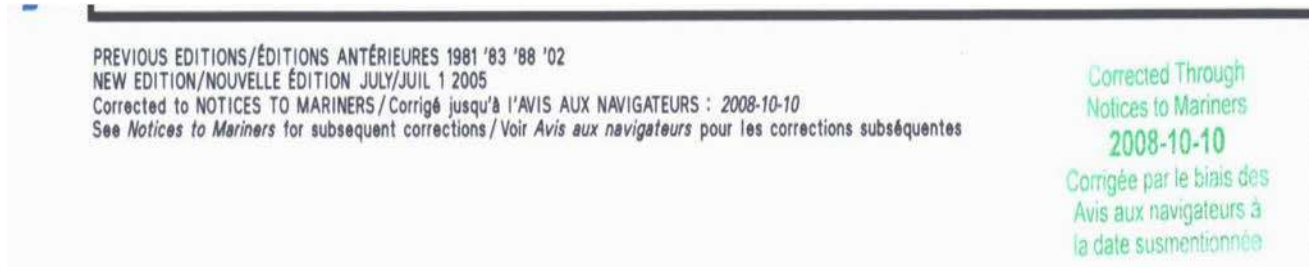


Figure 3 Chart Number and Title

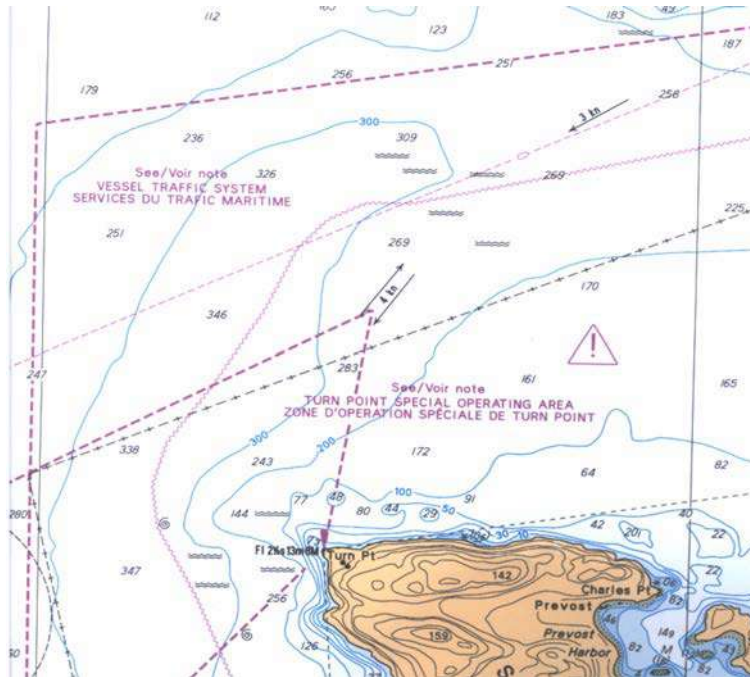


*Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.*

Figure 4 Chart Edition and Correction Date

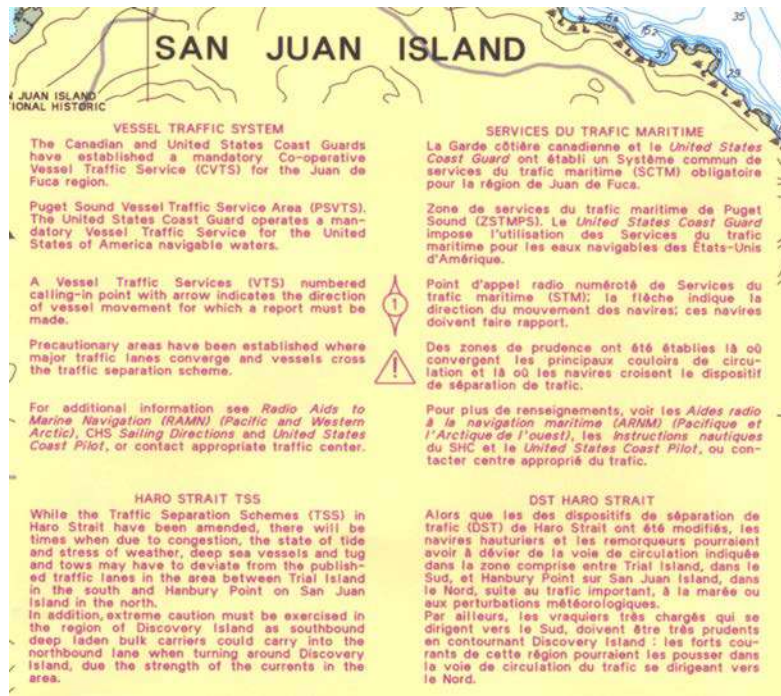
**Important information and warnings.** Important changes to charted information such as changes to traffic schemes and mooring areas may be printed in magenta-coloured ink. This ink is easily read under a red light (which is used on chart tables during night navigation). Important information found on *Chart 3441* is:

- **Vessel traffic system.** In July 2005, the vessel traffic system from Victoria to Vancouver was changed by the Canadian and United States Coast Guards. Information on the traffic system has been highlighted by symbols in Haro Strait (as illustrated in Figure 5) and further explained in magenta-coloured ink notes in the lower left corner of the chart (as illustrated in Figure 6).



Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 5 Special Notes–Turn Point Special Operating Area

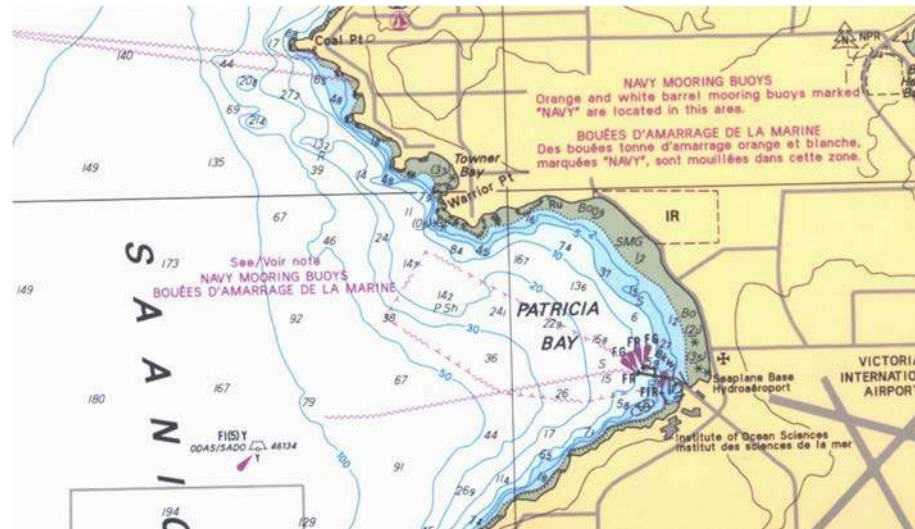


Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 6 Explanation of Special Notes



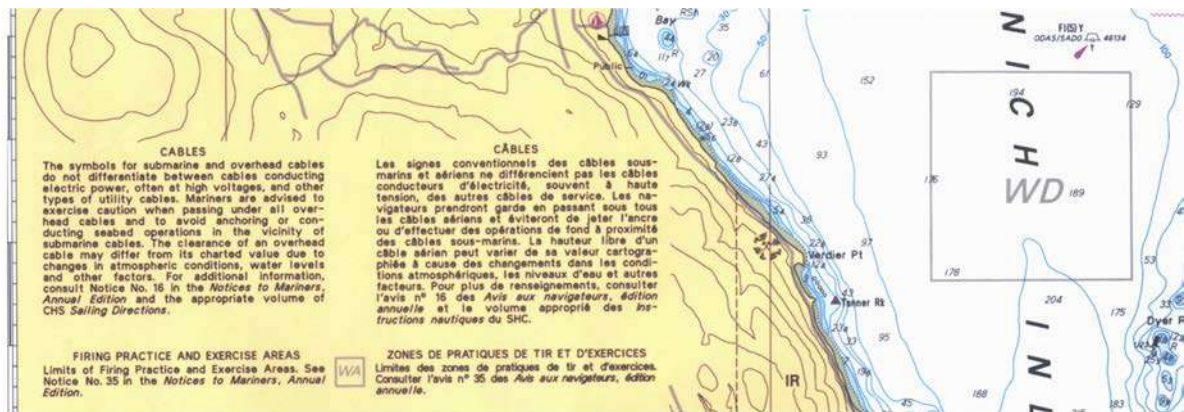
- **Navy mooring buoys.** Navy mooring buoys located in Patricia Bay are described with a note located on the Saanich Peninsula north of Patricia Bay (as illustrated in Figure 7).



Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 7 Patricia Bay Mooring Buoys

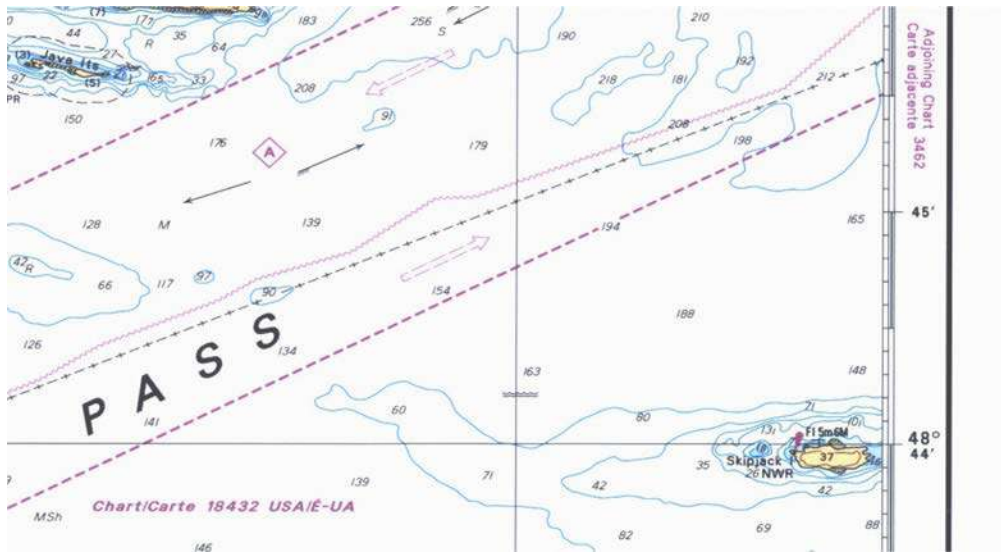
- **Firing practice and exercise areas.** Areas reserved for military weapons practice and exercises will be outlined in light grey boxes (as illustrated in Figure 8). Further information on these areas is outlined in *Notice to Mariners: Annual Edition*. In this case, *Notice to Mariners number 35* of each year.



Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 8 Weapons Practice Area

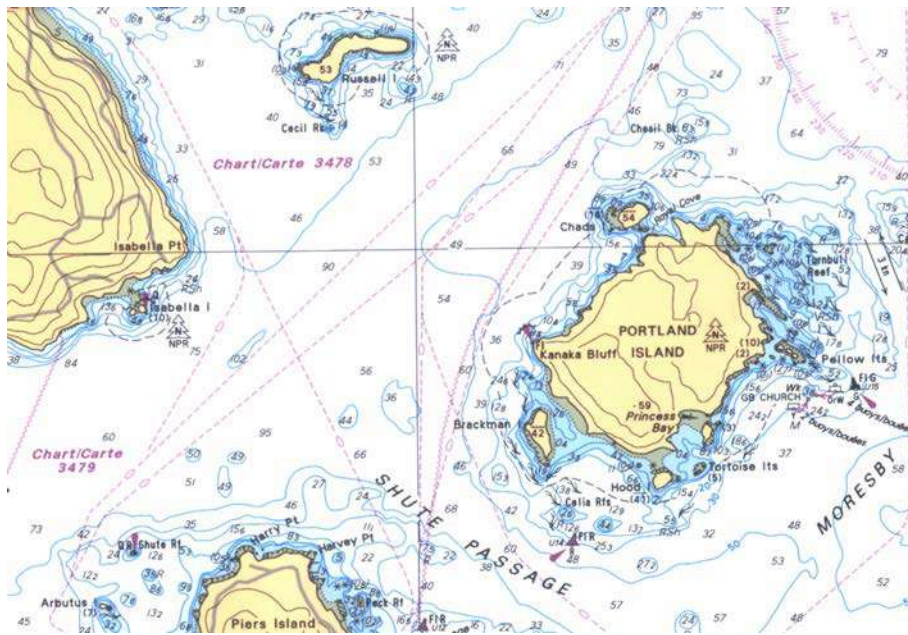
**Adjoining charts.** Chart numbers for adjoining charts are placed around the margin. This will allow quick and easy chart changes as the navigation passage is executed. If the adjoining chart covers navigation areas of other nations, such as the US, the proper chart number of that country will also be printed in magenta-coloured ink inside the territorial boundary of that country (as illustrated in Figure 9).



Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 9 Adjoining Chart Numbers

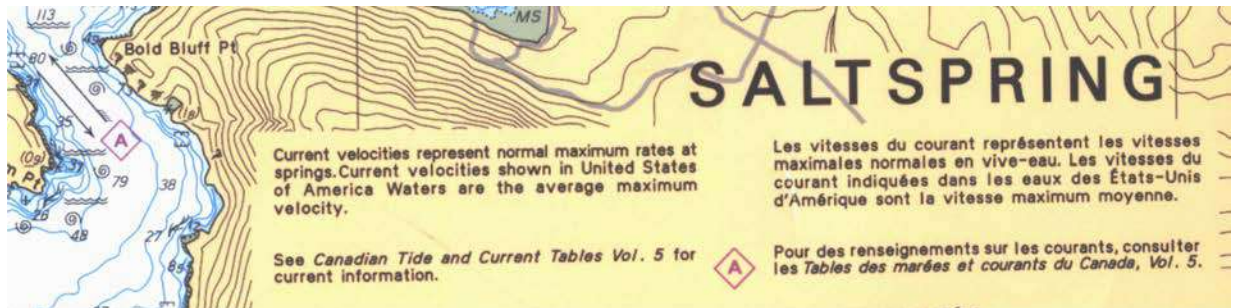
**Large scale chart numbers.** Are printed on the chart for areas where, in order to navigate safely, greater detail is required. Harbour charts, small passages and smaller waterways will have large-scale charts identified on the small-scale chart (as illustrated in Figure 10).



Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 10 Large Scale Chart Numbers

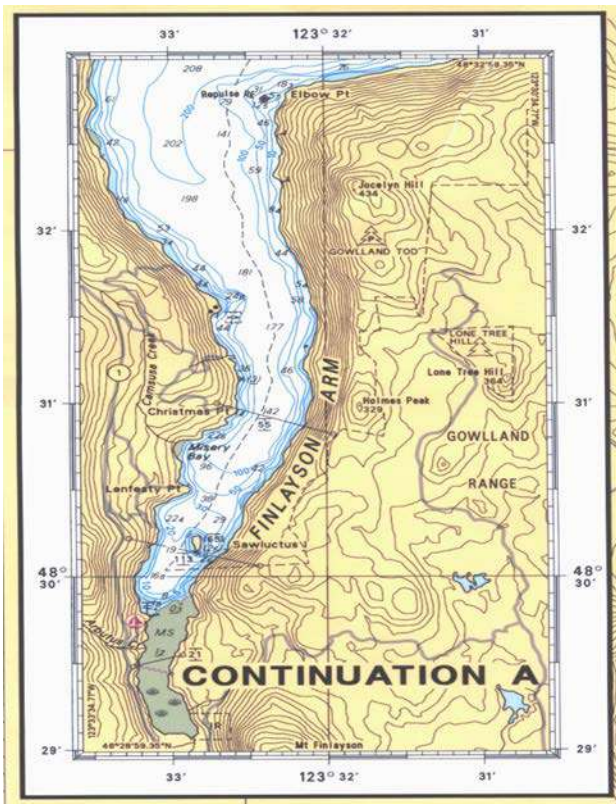
**Tidal diamonds.** The information which relates to this diamond is found elsewhere on the chart or may be referenced to another publication such as *Canadian Tide and Current Tables Vol. 5*. This publication will give the rates and direction of the currents in this area (as illustrated in Figure 11).



Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 11 Tidal Diamond

**Inserts / continuations.** Chart inserts are placed on the chart to show greater detail of a harbour or small area that would be too small to have its own chart. On *Chart 3441*, Continuation A is shown to give greater detail to Finlayson Arm (as illustrated in Figure 12). This area is too small to create its own separate chart.



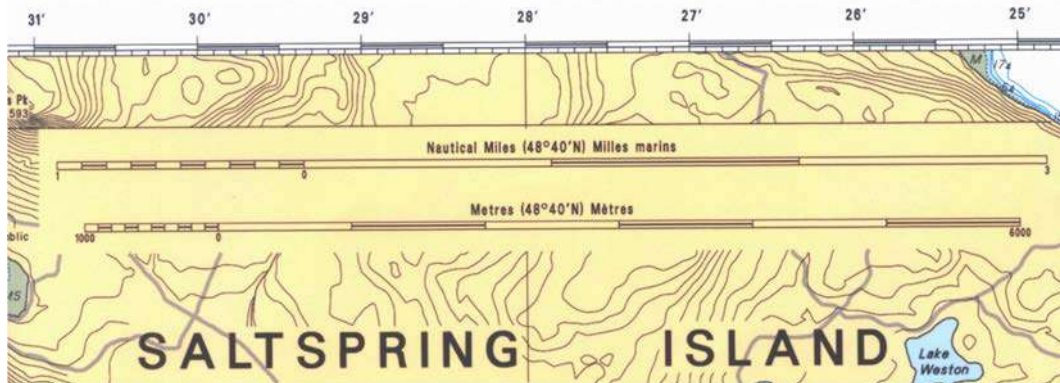
Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 12 Continuation A

**Distance scales.** Scales for measuring distances are provided in convenient locations on the chart. These scales can be used to measure distances in nautical miles (M) or in metres (m) (as illustrated in Figure 13).



Measuring distances will be covered in greater detail in EO M423.03 (Describe Latitude and Longitude).

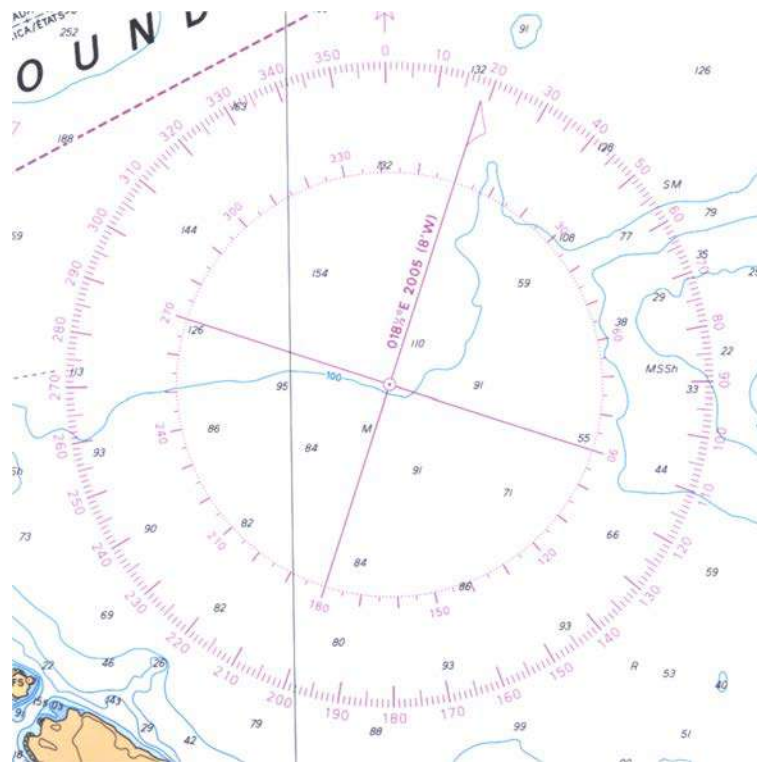


*Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.*

Figure 13 Distance Scales

**Compass rose.** Every chart has at least one compass rose. Every compass rose has two circles. The outer circle is aligned to true north and the inner circle is aligned to magnetic north (as illustrated in Figure 14). When plotting bearings or courses on a chart, the outer (True) circle is used. The important information to remember about a compass rose is:

- True directions are printed around the outer circle of the compass rose.
- Magnetic directions are printed around the inner circle of the compass rose. The inner scale is oriented toward magnetic north.
- True north and magnetic north point to different directions.



Note. From Chart 3441, Haro Strait, Boundary Pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 14 Compass Rose



Distribute the Chart Information Worksheet located at Attachment A.

The cadets have 10 minutes to complete the worksheet (cadets may work in pairs to complete). Once the worksheet is completed, have the cadets exchange their sheets for correction.

Review Chart Information Answer Sheet located at Attachment B with the cadets.

---

### CONFIRMATION OF TEACHING POINT 2

---

The cadets' completion of the Chart Information Worksheet will serve as the confirmation of this TP.

---

### END OF LESSON CONFIRMATION

---

The cadets' completion of the Chart Information Worksheet and return of scrubbed charts will serve as the confirmation of this lesson.

---

### CONCLUSION

---

### HOMEWORK / READING / PRACTICE

Nil.

**METHOD OF EVALUATION**

This EO is assessed IAW A-CR-CCP-604/PG-001, *Phase Four Qualification Standard and Plan*, Chapter 3, Annex B, 423 PC.

**CLOSING STATEMENT**

Recognizing the importance of chart maintenance and information found on a chart will lead to prolonged use of the chart and the proper selection of charts for passage planning.

**INSTRUCTOR NOTES / REMARKS**

Nil.

---

**REFERENCES**

---

C1-165 ISBN 1-57409-052-6 Larkin, F. (1998). *Basic coastal navigation*. Dobbs Ferry, NY: Sheridan House Inc.

### CHART INFORMATION WORKSHEET

Answer the following questions using *Chart 3441 Haro Strait, Boundary Pass and / et Satellite Channel*.

Q1. What is the scale? What does it mean?

A1. \_\_\_\_\_  
\_\_\_\_\_

Q2. How are soundings measured on this chart?

A2. \_\_\_\_\_  
\_\_\_\_\_

Q3. What is the date of the newest edition of this chart?

A3. \_\_\_\_\_  
\_\_\_\_\_

Q4. Which Notice to Mariners outlines information on the Firing Practice and Exercise Areas that are shown on this chart?

A4. \_\_\_\_\_  
\_\_\_\_\_

Q5. The revised Traffic Separation Scheme from Victoria to Vancouver came into effect on which date?

A5. \_\_\_\_\_  
\_\_\_\_\_

Q6. Describe the Navy mooring buoys in Patricia Bay.

A6. \_\_\_\_\_  
\_\_\_\_\_

Q7. Identify the large scale or adjoining chart numbers for the following areas:

- a. Cowichan Bay: \_\_\_\_\_
- b. Bazan Bay: \_\_\_\_\_
- c. Spieden Channel: \_\_\_\_\_

d. Areas east of Jones Island: \_\_\_\_\_

e. North end of Plumper Sound: \_\_\_\_\_

f. Areas north of Octopus Pt.: \_\_\_\_\_

Q8. What is the charted height of the following:

a. Highest point on Portland Island: \_\_\_\_\_

b. Tortoise Islets: \_\_\_\_\_

c. Christmas Pt. Power Cable: \_\_\_\_\_

d. Highest rock in Patricia Bay: \_\_\_\_\_

Q9. What area is shown in Continuation A?

A9. \_\_\_\_\_

Q10. What units of measurement are used for the two distance scales on the chart?

A10. \_\_\_\_\_

Q11. What is the latest survey used to make this chart?

A11. \_\_\_\_\_

Q12. Who published this chart?

A12. \_\_\_\_\_



### CHART INFORMATION ANSWER SHEET

Answer the following questions using Chart 3441 *Haro Strait, Boundary Pass and Satellite Channel*.

- Q1. What is the scale? What does it mean?  
A1. **The scale is 1 : 40 000. This means that every inch on the chart represents 40 000 inches on the earth's surface.**
- Q2. How are soundings measured on this chart?  
A2. **Soundings are measured in metres and are reduced to Chart Datum.**
- Q3. What is the date of the newest edition of this chart?  
A3. **July 1, 2005.**
- Q4. Which Notice to Mariners outlines information on the Firing Practice and Exercise Areas that are shown on this chart?  
A4. **Annual Notice to Mariners number 35.**
- Q5. The revised Traffic Separation Scheme from Victoria to Vancouver came into effect on which date?  
A5. **July 1, 2005.**
- Q6. Describe the Navy mooring buoys in Patricia Bay.  
A6. **They are orange and white barrel mooring buoys.**
- Q7. Identify the large scale or adjoining chart numbers for the following areas:
- a. Cowichan Bay: **Chart 3478.**
  - b. Bazan Bay: **Chart 3479.**
  - c. Spieden Channel: **Chart 18433 USA.**
  - d. Areas east of Jones Island: **Chart 18421 USA.**
  - e. North end of Plumper Sound: **Chart 3477.**
  - f. Areas north of Octopus Pt.: **Chart 3478.**
- Q8. What is the charted height of the following:
- a. Highest point on Portland Island: **57 m.**
  - b. Tortoise Islets: **5 m.**
  - c. Christmas Pt. Power Cable: **55 m.**
  - d. Highest rock in Patricia Bay: **3.5 m.**
- Q9. What area is shown in Continuation A?  
A9. **Finlayson Arm (Southern Portion).**
- Q10. What units of measurement are used for the two distance scales on the chart?  
A10. **Nautical miles and metres.**
- Q11. What is the latest survey used to make this chart?  
A11. **1999.**
- Q12. Who published this chart?

**A12. Canadian Hydrographic Service.**



## ROYAL CANADIAN SEA CADETS

### PHASE FOUR

### INSTRUCTIONAL GUIDE



### SECTION 2

### EO M423.02 – USE NAVIGATION INSTRUMENTS

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-604/PG-001, *Phase 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.

Review *Chart 3441* and become familiar with the geographical places specified in this lesson.

Set up the classroom or training area so that cadets can work in pairs at tables suitable for chartwork.

Distribute one set of navigation instruments, *Symbols Abbreviations Terms (Chart 1)* and *Chart 3441 Haro Strait, Boundary Pass and / et Satellite Channel* to each pair of cadets.

If desired, an alternative chart, such as one of the local area, may be used. If so, modify the lesson to include the information in the given examples to reflect that chart.

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

A demonstration and performance was chosen for this lesson as it allows the instructor to explain and demonstrate the skills the cadets is expected to acquire while providing an opportunity for the cadets to practice the skills under supervision.

### INTRODUCTION

#### REVIEW

Nil.

#### OBJECTIVES

By the end of this lesson the cadet shall have used navigation instruments.

## **IMPORTANCE**

It is important for cadets to know how to navigate as it introduces them to skills necessary for future training opportunities. Knowledge of this information will ensure that cadets are able to create safe and effective navigation plans for on water activities.

**Teaching Point 1****Demonstrate and have the cadets' practice using navigation instruments.**

Time: 50 min

Method: Demonstration and Performance



For this TP it is recommended that instruction take the following format:

1. Explain and demonstrate the use of each navigation instrument.
2. Explain and demonstrate each step required to use each instrument.
3. Monitor the cadets' performance as they practice with each navigation instrument.

**USE OF NAVIGATION INSTRUMENTS**

The purpose of navigation is to find the present position and to determine the necessary speed, direction etc, to arrive at a port or point of destination. The proper use of navigation instruments will greatly effect the accuracy of the navigation and will therefore impact the safe and timely execution of any planned passage.

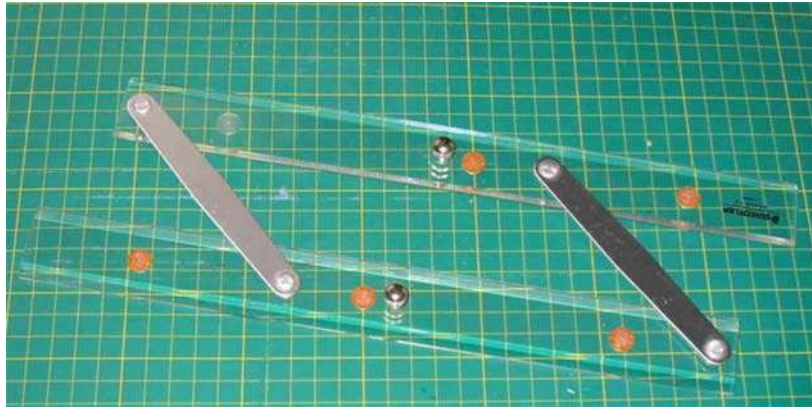
A navigator's instrument kit will contain, but is not limited to, the following:

- **Pencils.** The recommended pencils for navigation are 2H wooden pencils. These pencils allow clean lines on the chart and will not leave wide, smudgy lines which are difficult to erase. Mechanical pencils (0.5 mm and 0.7 mm) are not recommended as the lead will become very sharp during use and may damage the surface of the chart, leaving permanent lines.
- **Erasers.** Tests done by Canadian Hydrographic Service (CHS) indicate that indian gum erasers work the best on either type of chart. Never use the red erasers which are attached to the pencil. These erasers will leave red smears on the chart and their abrasive material may scrub any information (lines, soundings, etc.) from the surface of the chart.
- **Parallel ruler.** Used for transferring a line across a chart while maintaining its direction. There are two main types of parallel rulers used:



Cadets should be given an opportunity to use both types of rulers (if available).

- **Hinged parallel ruler.** Two straight edges hinged so that they maintain the same angle. By alternating the moving edge, and securely holding down the non-moving edge, the rulers move about the chart while maintaining the same angle (as illustrated in Figure 1).



Note. From Wikipedia, 2008, Parallel Ruler, Retrieved November 6, 2008, from [www.wikipedia.org/wiki/parallel\\_ruler](http://www.wikipedia.org/wiki/parallel_ruler)

Figure 1 Hinged Parallel Ruler



Instructions on how to use a hinged parallel ruler are located at Attachment A.

- **Rolling parallel ruler.** Designed to roll without sliding laterally and easy to use with little practice. Rolling rulers do not work well near the edge or over folds in charts as they may catch on the fold or edge. (Illustrated in Figure 2).



Note. From Chartroom-online.com, 2008, The Navigators Best Friend, Retrieved November 6, 2008, from [www.chartroom-online.com/store/products/equipment/RollingRule.html](http://www.chartroom-online.com/store/products/equipment/RollingRule.html)

Figure 2 Rolling Parallel Ruler



Instructions and an exercise for the cadets on how to use a rolling parallel ruler are located at Attachment B.

- **Dividers.** Dividers are used to measure the distance between two points, and also to help align parallel rulers. There are several styles of dividers available. A good set of dividers will have an adjusting screw to maintain the tension on the divider's arms.



*Note. From Binnacle.com, 2008, Your Online Marine Store, Retrieved November 13, 2008, from [http://ca.binnacle.com/Product\\_info.php](http://ca.binnacle.com/Product_info.php)*

Figure 3 Dividers



Further details on how dividers are used in navigation are provided in EO M423.03 (Describe Latitude and Longitude).

Additional navigation instruments that could be included are:

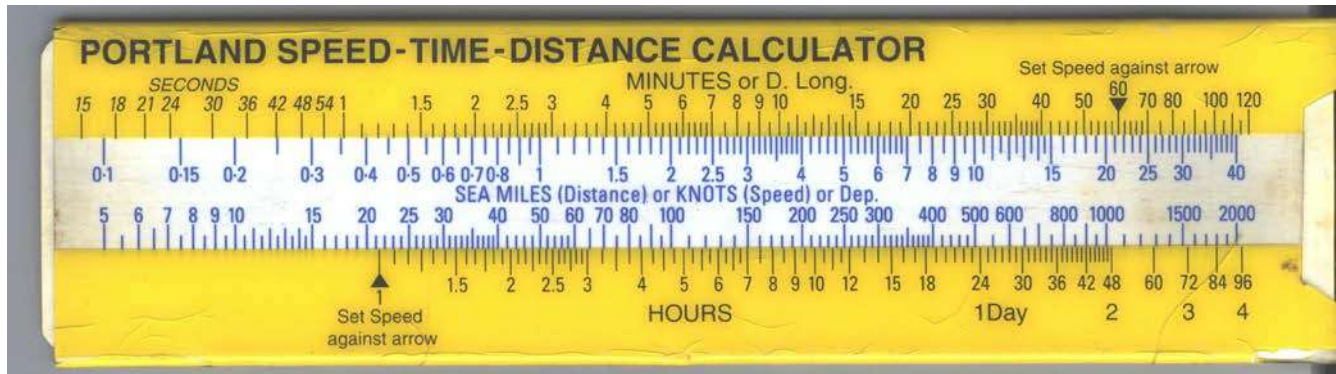
- **Drafting compass.** A drafting compass can be used for scribing arcs, which indicate distances, on a chart. The best compass for navigation is one with a thumb screw between the legs to keep them in a set position.



Note. From Staedtler.com, 2008, Retrieved November 13, 2008, from [www.staedtler.com/technical\\_drawing](http://www.staedtler.com/technical_drawing)

Figure 4 Drafting Compass

- **Speed-Time-Distance calculator.** A simple slide rule for calculating the speed, distance or time if the other two quantities are known.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure 5 Portland Speed-Time-Distance Calculator



Instructions on how to use a Speed-Time-Distance (STD) calculator are located at Attachment C.

---

### CONFIRMATION OF TEACHING POINT 1

---

The cadets' participation in using the navigation instruments will serve as the confirmation of this TP.



---

**END OF LESSON CONFIRMATION**

---

**QUESTIONS:**

- Q1. What type of pencil is recommended for navigation?
- Q2. What are the two types of parallel rulers?
- Q3. What instrument is used to measure distance between two objects?

**ANTICIPATED ANSWERS:**

- A1. 2H wooden pencils.
- A2. Hinged or rolling.
- A3. Dividers.

---

**CONCLUSION**

---

**HOMEWORK / READING / PRACTICE**

Nil.

**METHOD OF EVALUATION**

This EO is assessed IAW A-CR-CCP-604/PG-001, *Phase Four Qualification Standard and Plan*, Chapter 3, Annex B, 423 PC.

**CLOSING STATEMENT**

Using navigation instruments accurately will allow the cadets to safely navigate and complete their objectives during actual navigation passages.

**INSTRUCTOR NOTES / REMARKS**

Nil.

---

**REFERENCES**

---

C1-163 ISBN 0-07-137226-1 Brogdon, B. (1995). *Boat navigation for the rest of us* (2nd ed.). Camden, ME: International Marine.

THIS PAGE INTENTIONALLY LEFT BLANK

## HOW TO USE A HINGED PARALLEL RULER

Hinged parallel rulers are used to plot direction or transfer parallel lines on a chart. They are, essentially, two straight edges that are hinged so that they maintain the same angle. By altering the moving edge, and securely holding the non-moving edge, the ruler can be moved about the chart while maintaining the same angle.

The following steps explain how to use a hinged parallel ruler:

1. Align the bottom edge of the ruler with the bottom edge of the chart.
2. Hold the bottom half of the ruler stationary and move the top half until the hinges are straight up and down.
3. While holding the top half stationary, close the ruler.
4. Hold the bottom stationary and move the top half until the upper edge aligns with the first parallel of longitude on the chart (on *Chart 3441* it is  $48^{\circ} 36' N$ ). If the ruler has not moved, the edge of the ruler should be precisely aligned with the line on the chart.
5. Practice moving the ruler up and down the chart.



### COMMON ERRORS

It is common for novice navigators to make the following errors when learning to use a hinged parallel ruler:

- Not applying consistent pressure along the stationary side of the ruler by only pushing down on the handles. Spread the pressure along the entire side of the ruler and use the handles only when moving the side.
- Always moving the halves in the same direction when opening and closing the ruler. This will make the ruler move in that direction (eg, if you always open and close the ruler by moving the corresponding half to the right, the ruler will move across the chart to the right).

THIS PAGE INTENTIONALLY LEFT BLANK

## HOW TO USE A ROLLING PARALLEL RULER

Rolling parallel rulers are used to plot direction or transfer parallel lines on a chart. These rulers contain two large brass wheels mounted on a single axle which runs through the centre of the ruler. This will allow the ruler to smoothly roll along the chart while maintaining the same angle.

The following steps explain how to use a rolling parallel ruler:

1. Align the bottom edge of the ruler with the bottom edge of the chart.
2. Carefully roll the ruler to the first parallel of latitude on the chart (on *Chart 3441* it is  $48^{\circ} 36' N$ ).
3. If the ruler has not moved, the edge of the ruler should be precisely aligned.
4. Practice moving the ruler up and down the chart.



### COMMON ERRORS

It is common for novice navigators to make the following errors when learning to use a rolling parallel ruler:

- Not applying consistent pressure along the length of the ruler. Many times the ruler will wander because the person using it is only pushing down on the centre of the ruler.
- Moving the ruler too fast along the chart. Care must be taken when rolling the ruler to ensure that it remains straight.
- Trying to roll over folds, edges and other obstructions, such as eraser pieces, when moving the roller from one point to another. Before moving the ruler, ensure the path you wish to roll along is clear of anything the ruler may catch on.

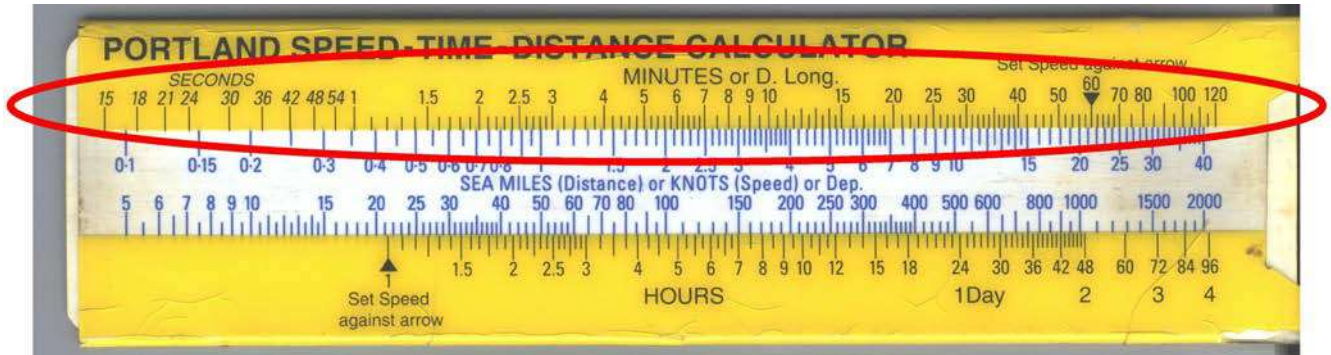
THIS PAGE INTENTIONALLY LEFT BLANK

## HOW TO USE A SPEED-TIME-DISTANCE CALCULATOR

The Speed-Time-Distance (STD) Calculator is a simple slide ruler which can be a navigator's most used tool. The ruler can assist a navigator in easily and quickly calculating any required value when given two others.

### Parts and Scales

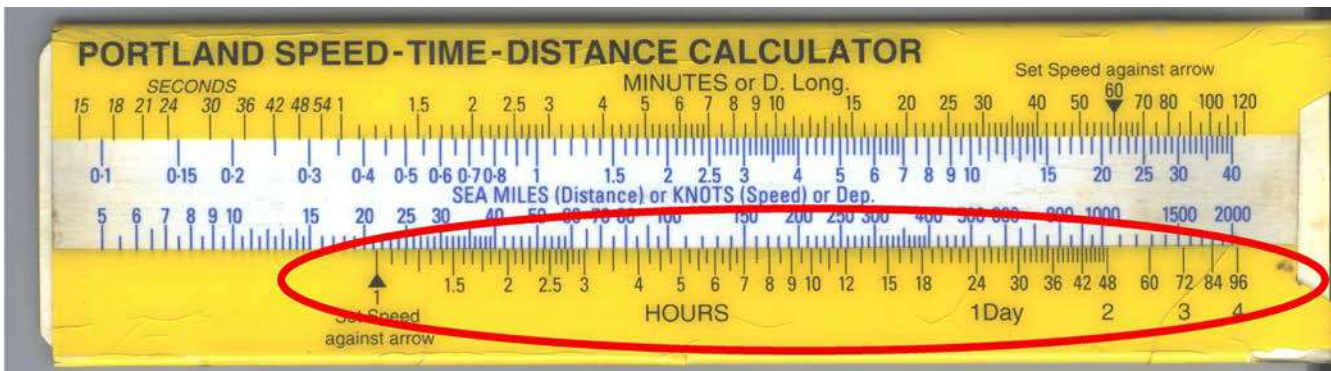
1. **Top scale.** This scale is divided into minutes and seconds from 15 seconds to 120 minutes (two hours) (as illustrated in Figure C-1).



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure C-1 Top Scale

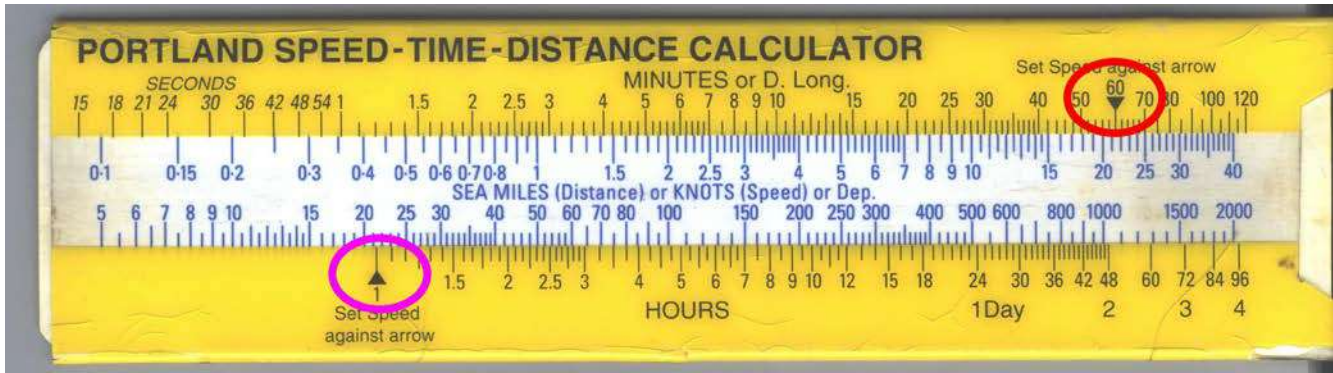
2. **Bottom scale.** This scale is divided into hours and days. From left to right the scale begins at 1 hour and continues to 96 hours (four days) (as illustrated in Figure C-2).



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure C-2 Bottom Scale

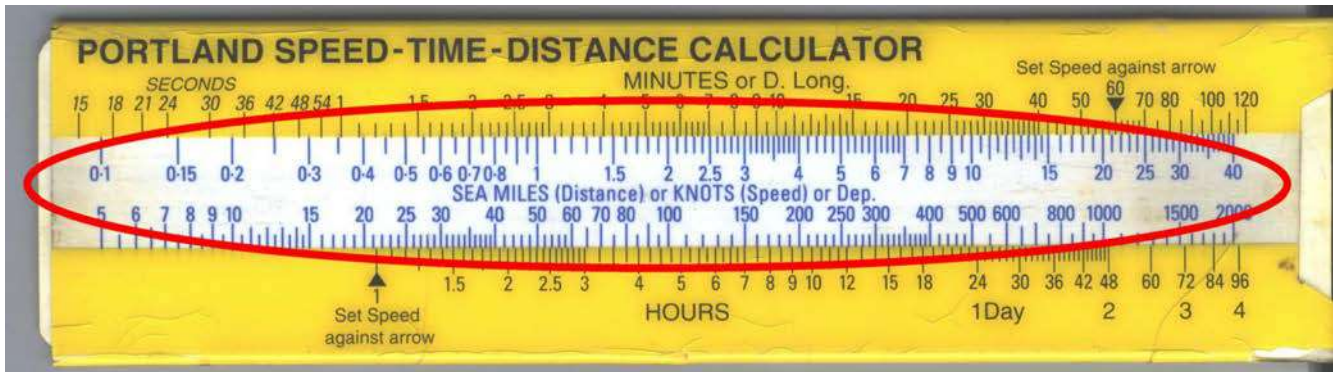
3. **Top speed arrow.** This speed arrow is used for calculations when the time given or required is two hours or less (as illustrated in Figure C-3).
4. **Bottom speed arrow.** This speed arrow is used when calculating working in hours and days and large distances greater than 5 M (as illustrated in Figure C-3).



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure C-3 Top and Bottom Speed Arrows

5. **Centre scale.** This scale can be used to represent either sea miles (Nautical Miles) or knots depending on which value is being calculated. The upper scale is for any speed up to 40 knots. The lower scale is used for speeds over 5 knots for periods of time longer than one hour (as illustrated in Figure C-4).



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure C-4 Centre Scale

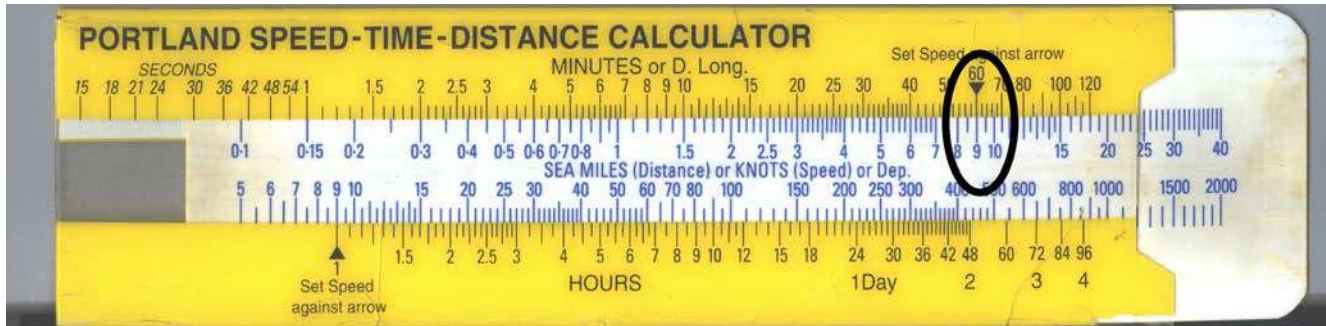
### Calculating Time Required

When the speed is known, to find the time required to run a given distance, set the speed in knots on the upper miles scale against the upper arrow and read off the time opposite the distance to travel.

For example:

1. If the boat has a speed of 9 knots and the marina it is going to is 27 M away, how long will it take to get there?
  - (a) Align 9 knots on the upper miles scale to the upper speed arrow.

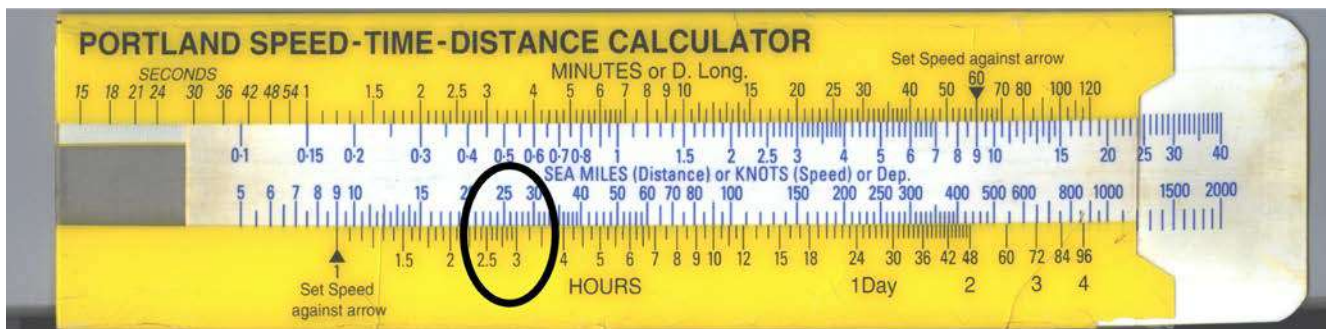




Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure C-5 Step 1a

(b) Read the time opposite the 27 M on the lower miles scale. The answer is 3 hours.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

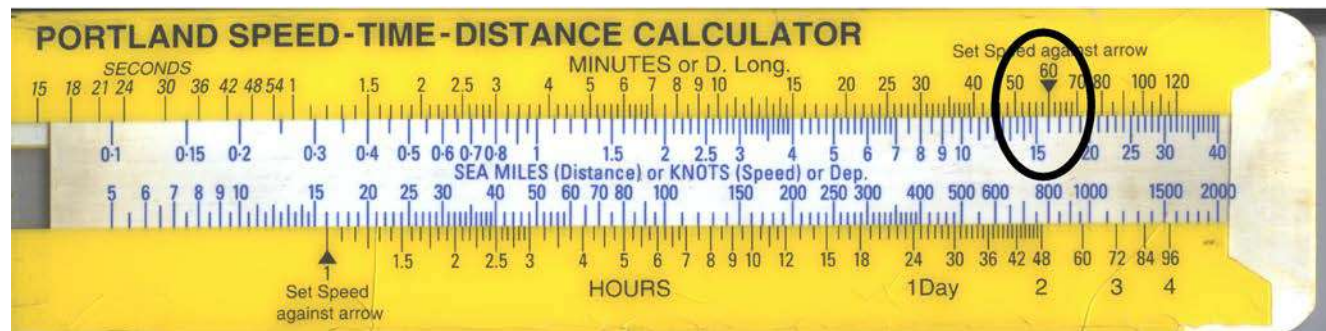
Figure C-6 Step 1b

**Calculating Distance Travelled:**

To find the distance travelled, when the speed and time travelled are known, set the speed in knots on the upper miles scale against the upper arrow and read off the distance opposite the time travelled.

For example:

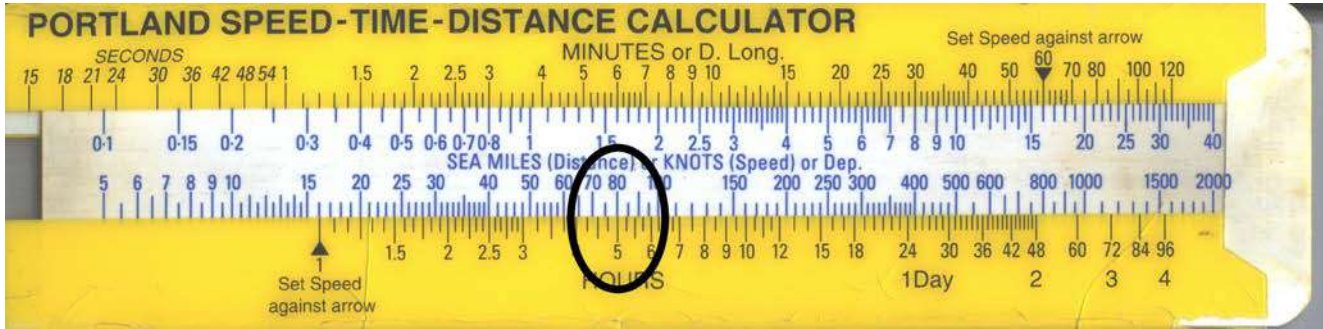
1. If the boat has been travelling at 16 knots for 5 hours, how far will it travel?
  - (a) Align 16 knots on the upper miles scale to the upper speed arrow.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure C-7 Step 2a

(b) Read the distance travelled opposite 5 hours on the lower scale. The answer is 80 M.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

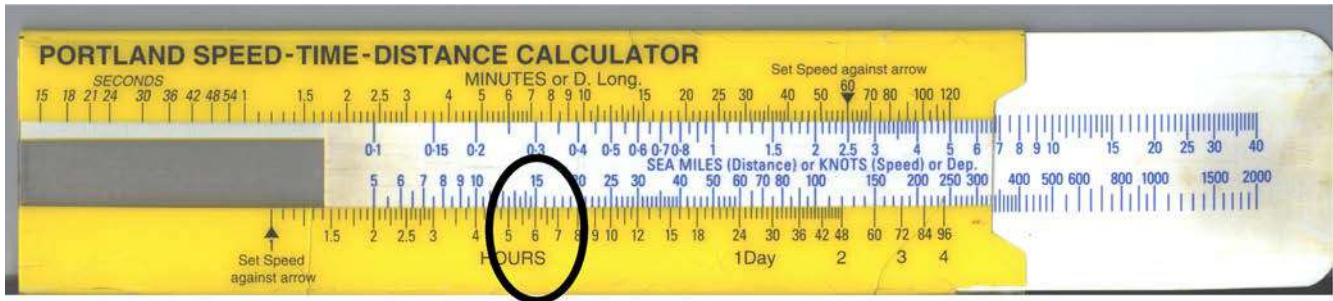
Figure C-8 Step 2b

**Calculating Speed Made Good**

Set the distance against the time and read off the speed in knots on the miles scale opposite the upper or lower speed arrow.

For example:

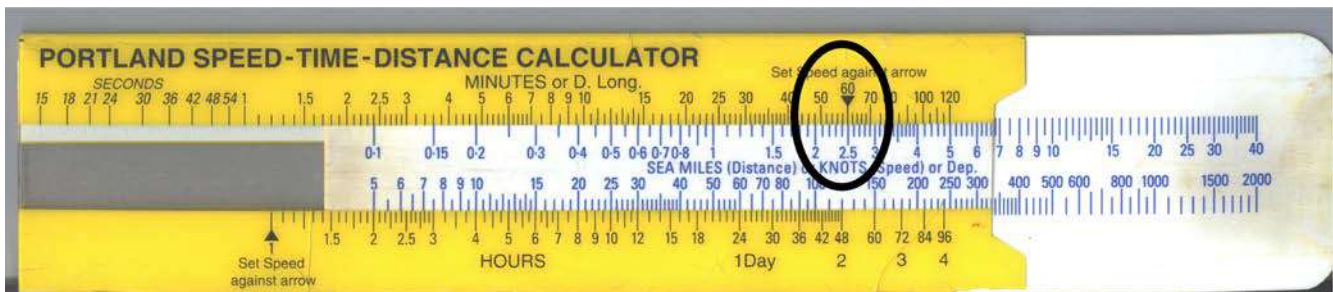
1. The boat has travelled for 15 M in 6 hours. What is the speed made good?
  - (a) Align 15 M on the lower miles scale with 6 hours on the lower scale.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure C-9 Step 3a

- (b) Read the speed made good opposite the upper speed arrow. The speed made good is 2.5 knots.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure C-10 Step 3b



## ROYAL CANADIAN SEA CADETS

### PHASE FOUR

### INSTRUCTIONAL GUIDE



### SECTION 3

### EO M423.03 – DESCRIBE LATITUDE AND LONGITUDE

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-604/PG-001, *Phase 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.

Review *Chart 3441* and become familiar with the geographical places specified in this lesson.

Photocopy Attachments A and C for each cadet.

Set up the classroom or training area so that cadets can work in pairs at tables suitable for chartwork.

Distribute one set of navigation instruments, *Symbols Abbreviations Terms (Chart 1)* and *Chart 3441 Haro Strait, Boundary Pass and / et Satellite Channel* to each pair of cadets.

If desired, an alternative chart, such as one of the local area, may be used. If so, modify the lesson to include the information in the given examples to reflect that chart.

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

An interactive lecture was chosen for TP 1 to introduce latitude and longitude to the cadets.

A practical activity was chosen for TP 2 as it is an interactive way to allow cadets to determine the latitude and longitude of given points and locate positions on a chart using different methods. This activity contributes to the development of navigation skills in a fun and challenging way.

A demonstration and performance was chosen for TP 3 as it allows the instructor to explain and demonstrate measuring distances on a chart while providing an opportunity for the cadets to practice the skills under supervision.

### INTRODUCTION

#### REVIEW

Nil.

**OBJECTIVES**

By the end of this lesson the cadet shall be expected to describe latitude and longitude and measure distances on a chart.

**IMPORTANCE**

It is important for cadets to know how to navigate as it introduces them to skills necessary for future training opportunities. Knowledge of this information will ensure that cadets are able to create safe and effective navigation plans for on-water activities.

**Teaching Point 1****Describe latitude and longitude.**

Time: 20 min

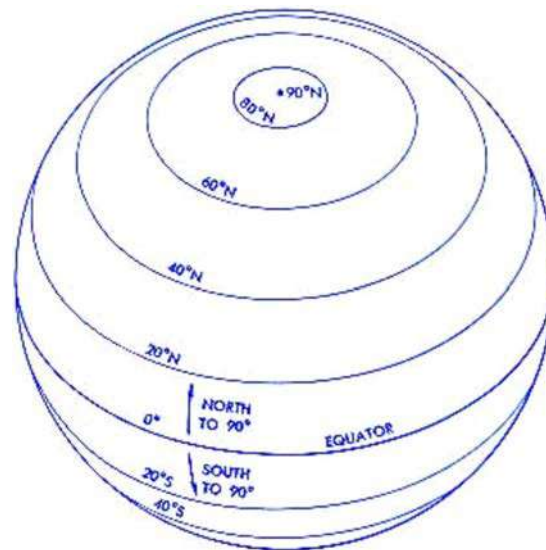
Method: Interactive Lecture

**DESCRIBE LATITUDE AND LONGITUDE**

To know precisely a location on the surface of the earth, a simple system of reference points, based on a set of lattice lines covering the globe was invented.

This system of lattice lines can be described as:

**Parallels of latitude.** These lines run parallel to the equator and are measured from 000 degrees at the equator to 90 degrees north or south at the poles. Since these lines are parallel, they are used to measure distance on a chart.



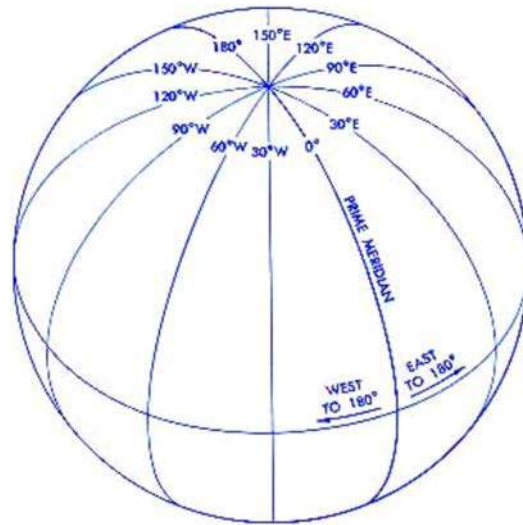
*Note. From "Latitude and Longitude: The Geographic Grid (Introduction)" by Dr. Rodrigue, 2000, Retrieved November 13, 2008, from [http://homepages.ius.edu/PGALVIN/lat\\_long/Geographic%20Grid.htm](http://homepages.ius.edu/PGALVIN/lat_long/Geographic%20Grid.htm)*

Figure 1 Parallels of Latitude



Memory Aid: "Lat. is flat."

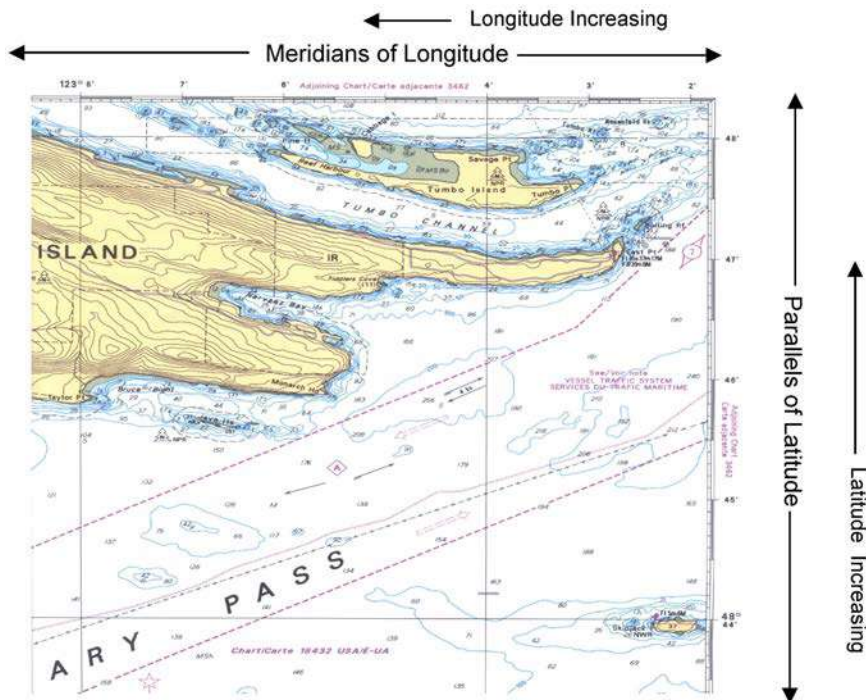
**Meridians of longitude.** Lines that run perpendicular to the equator and converge or meet at the poles (as illustrated in Figure 2). These lines are measured 180 degrees east or west from the Prime Meridian (000 degrees), which runs through Greenwich, England. These lines meet at a point called the International Date Line (180 degrees) on the other side of the globe from the Prime Meridian. Since the meridians of longitude converge at the poles, they cannot be used for measuring distance on a chart.



Note. From "Latitude and Longitude: The Geographic Grid (Introduction)" by Dr. Rodrigue, 2000, Retrieved November 13, 2008, from [http://homepages.ius.edu/PGALVIN/lat\\_long/Geographic%20Grid.htm](http://homepages.ius.edu/PGALVIN/lat_long/Geographic%20Grid.htm)

Figure 2 Meridians of Longitude

Any point on the earth's surface can be found by referencing the corresponding latitude and longitude. On charts, the latitude scales are found on the left and right sides while the longitude scales are found on the top and bottom.

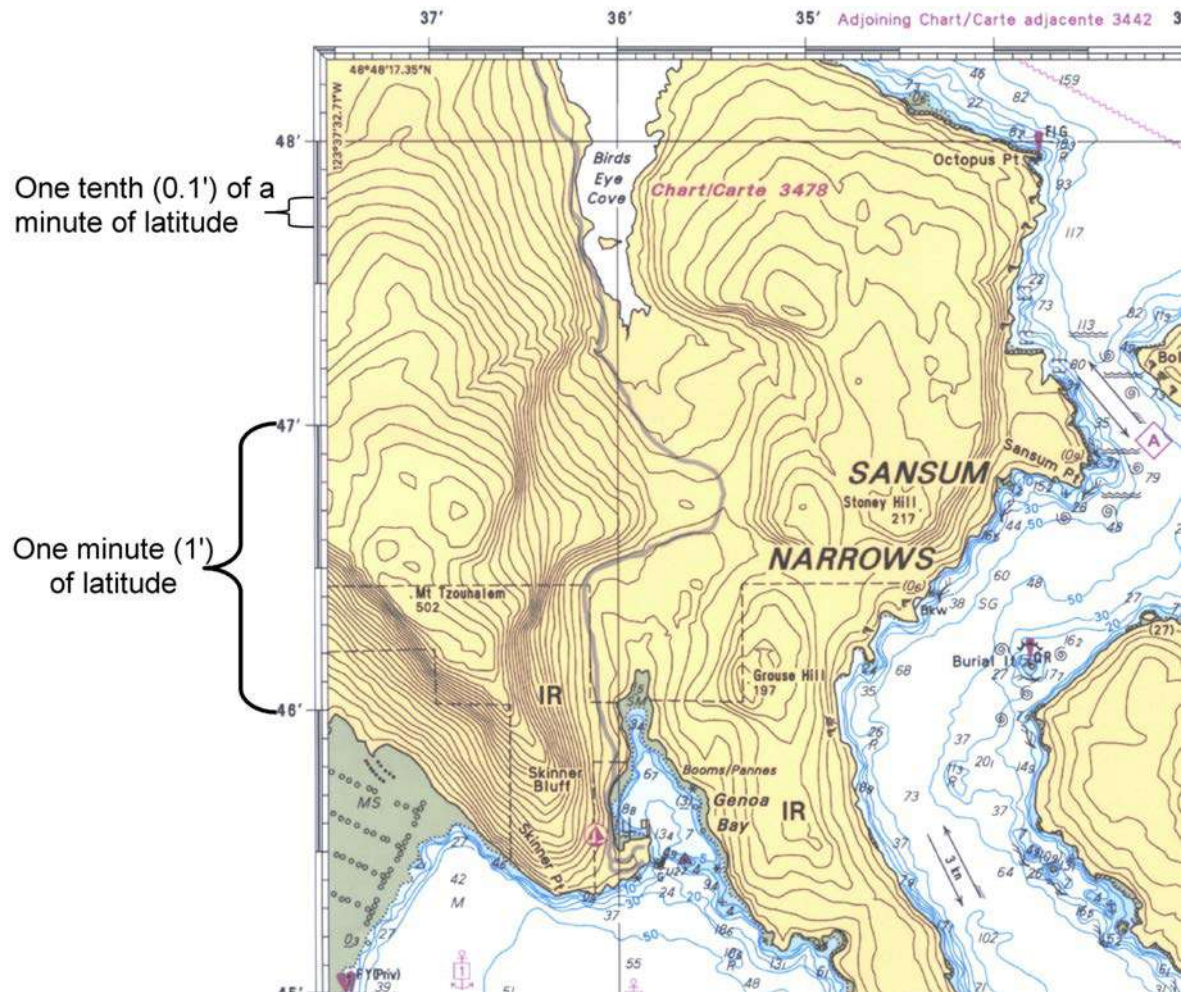


Note. From Chart 3441, Haro Strait, Boundary pass and / et Satellite Channel, 2005, ON: Canadian Hydrographic Service, Ottawa.

Figure 3 Latitude and Longitude

Chart 3441 depicts an area of British Columbia. Since this is in North America, the numbers on the latitude scale increase from the bottom of the chart to the top or as you move north. The numbers on the longitude scale increase from right to left as you move west (as illustrated in Figure 3).

Latitude and longitude are measured in degrees, minutes and seconds. A degree is divided into 60 minutes and each minute can be divided into 60 seconds. However, when referring to positions on a chart, it is more common to use degrees, minutes and tenths of a minute.



Note. From Chart 3441, Haro Strait, Boundary pass and / et Satellite Channel, 2005, Ottawa, ON: Canadian Hydrographic Service.

Figure 4 Minutes and Tenths of Minutes

When writing the latitude and longitude of a position, latitude is always written above longitude or written first when written on the same line.

Example: The position of Senanus I. light can be written as:

1. 48° 35.55' N 123° 29.20' W or
2. 48° 35.55' N  
123° 29.20' W

Degrees of longitude are always written in three digits (eg 090°E). If the longitude is less than 100 degrees, then a 0 is placed in front to differentiate between latitude and longitude.

---

**CONFIRMATION OF TEACHING POINT 1**

---

**QUESTIONS:**

- Q1. Which lines are parallel to the equator and are measured from the equator to the poles?
- Q2. What is the proper name for 000 degrees longitude?
- Q3. What is the most common way of writing latitude or longitude?

**ANTICIPATED ANSWERS:**

- A1. Parallels of latitude.
- A2. The Prime Meridian.
- A3. In degrees, minutes and tenths of minutes.

---

**Teaching Point 2**

**Conduct an activity where the cadets will use latitude and longitude to determine a position on a chart.**

Time: 50 min

Method: Practical Activity



The following information should be presented to the cadets prior to the activity.

With *Chart 3441*, determine the latitude and longitude of Separation Pt. light.

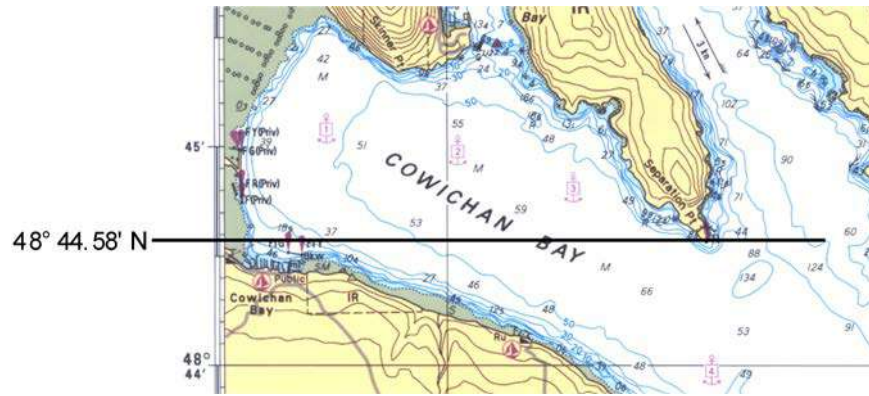
Two methods of finding the latitudes and longitudes are given. The cadets may use either method.

**Determining Latitude (Method One)**

The technique for using a parallel ruler to find the latitude is as follows:

- 1. Align the edge of the parallel ruler along the nearest parallel of latitude on the chart. In this example, the ruler must be placed so that its left end intersects the latitude scale on the left side of the chart.
- 2. Roll the ruler to the light's symbol so that the black dot of the symbol falls along the edge of the ruler. Using the ruler as a guide, draw a light line on the latitude scale where the ruler intersects the scale.
- 3. Read and record the latitude of the object (in this case the latitude is 48° 44.58' N).





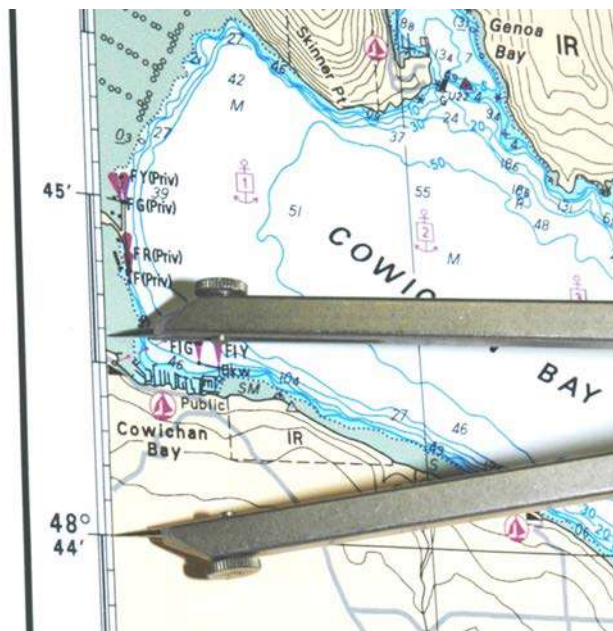
Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of Defence.

Figure 5 Measuring Latitude

### Determining Latitude (Method Two)

The technique of determining latitude using a set of dividers is as follows:

1. Align the edge of the parallel ruler with a meridian of longitude nearest Separation Pt.
2. Roll the ruler to the symbol so that the black dot at the bottom falls along the edge of the ruler.
3. Using the edge of the ruler as a guide, measure the distance from the symbol to the nearest parallel of latitude (in this case it is  $48^{\circ} 44' N$ ).
4. Move the dividers to the latitude scale on the left side of the chart. Place one point on the same parallel ( $48^{\circ} 44' N$ ) and measure up the scale (as Separation Pt. is north of this parallel).
5. Read and record the latitude of the light ( $48^{\circ} 44.58' N$ ).



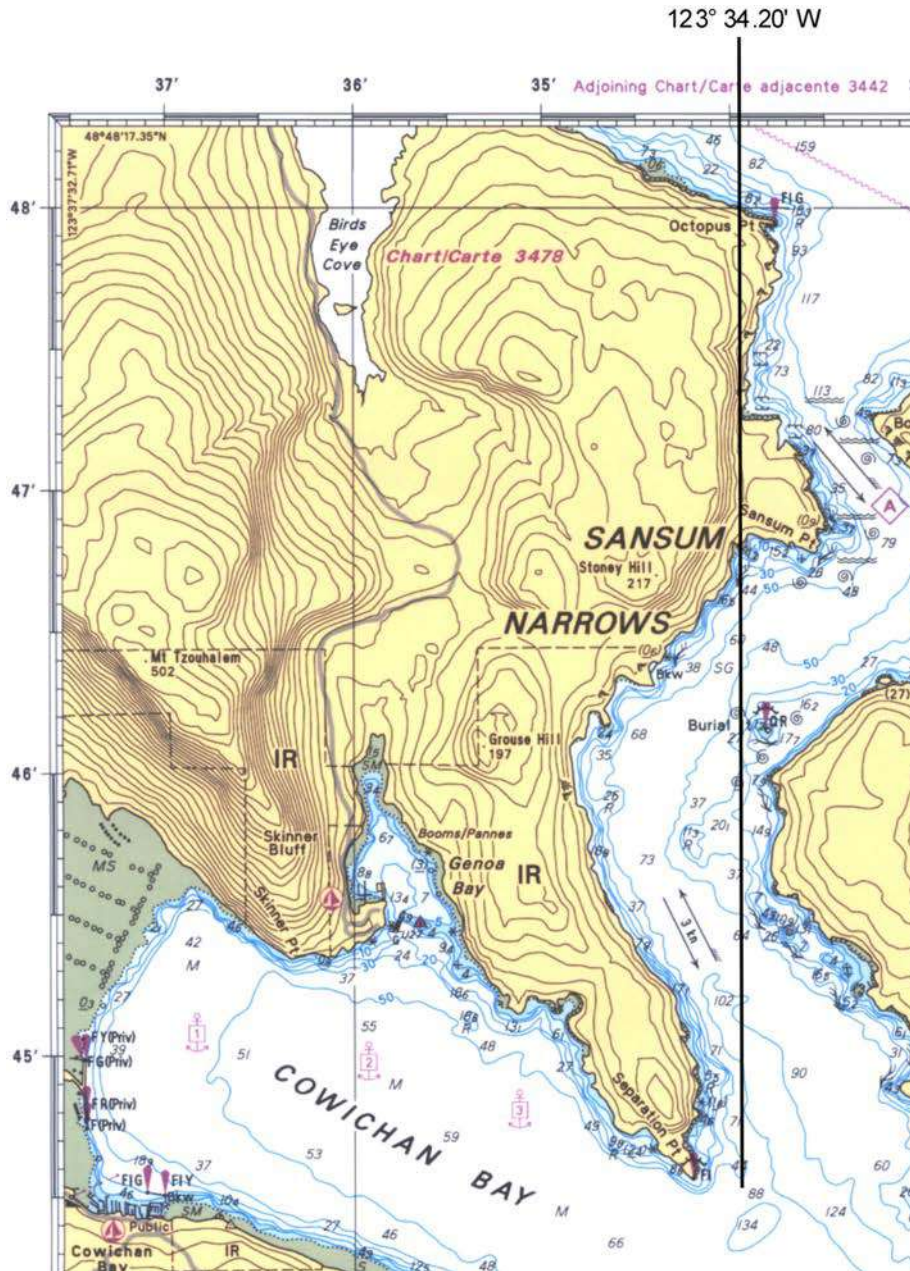
Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure 6 Determining Latitude Step 4

### Determining Longitude (Method One)

The technique of determining the longitude of a point using a parallel ruler is as follows:

1. Place the edge of the parallel ruler along a meridian of longitude or along the longitude scale on the left side of the chart.
2. Roll the ruler to the light symbol so that the black dot of the symbol falls along the edge of the ruler. Using the ruler as a guide, draw a light line on the longitude scale at the top of the chart where the ruler intersects it.
3. Read and record the longitude of the object (in this case the longitude is  $123^{\circ} 34.20' W$ ).



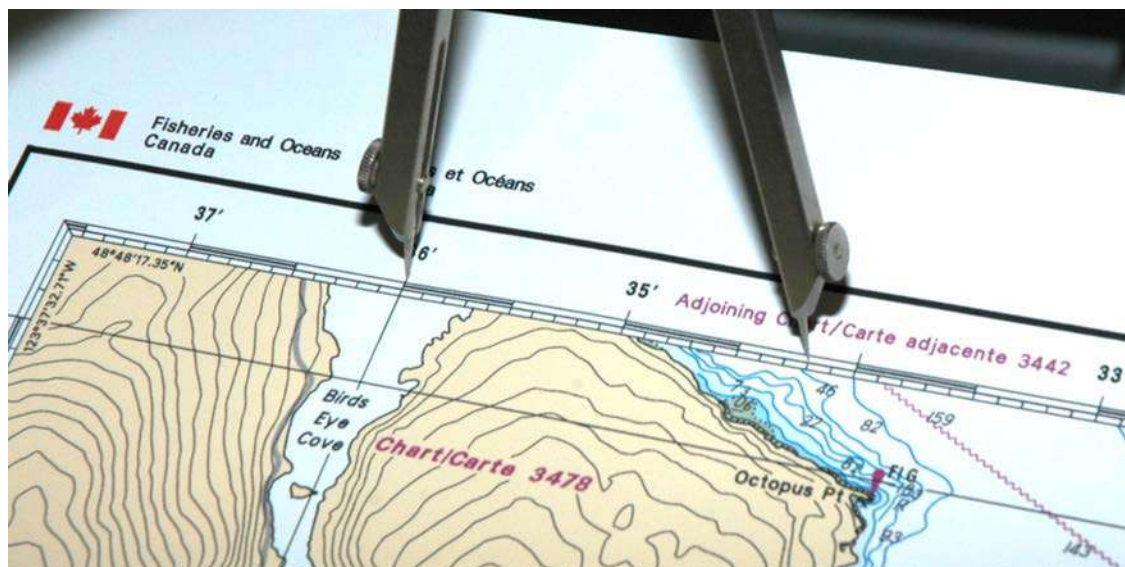
Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of Defence.

Figure 7 Determining Longitude

### Determining Longitude (Method Two)

The technique of determining longitude using a set of dividers for the same point is as follows:

1. Align the edge of the parallel ruler with the parallel of latitude nearest Separation Pt.
2. Roll the ruler to the symbol so that the black dot at the bottom falls along the edge of the ruler.
3. Using the edge of the ruler as a guide, measure the distance from the symbol to the nearest meridian of longitude (in this case it is  $123^{\circ} 36' W$ ).
4. Move the dividers to the longitude scale on the top of the chart. Place one point on the same meridian ( $123^{\circ} 36' W$ ) and measure along the scale to the right (as Separation Pt. is east of this meridian).



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 8 Determining Longitude Step 4

5. Read and record the longitude of the light ( $123^{\circ} 34.20' N$ ).

---

### ACTIVITY

Time: 20 min

---

### OBJECTIVE

The objective of this activity is to have the cadets determine latitude and longitude of given points.

### RESOURCES

- Navigation Instruments,
- *Chart 3441 Haro Strait, Boundary Pass and / et Satellite Channel,*
- Latitude and Longitude Worksheet located at Attachment A, and
- Position Worksheet located at Attachment C.

## ACTIVITY LAYOUT

1. Place *Chart 3441* and navigation instruments on each table.
2. Have cadets sit in pairs at the tables.

## ACTIVITY INSTRUCTIONS

1. Distribute the worksheets to each cadet.
2. Have the cadets find the latitude and longitude of each point listed on the worksheets. The time allocated is 15 minutes.
3. Once the worksheets are complete, correct the cadets' answers using the answer keys located at Attachments B and D.

## SAFETY

Nil.

---

### CONFIRMATION OF TEACHING POINT 2

---

The cadets' completion of the worksheets will serve as the confirmation of this TP.

---

### Teaching Point 3

**Explain, demonstrate and have the cadets measure distances on a chart.**

Time: 40 min

Method: Demonstration and Performance

---



The following information should be presented to the cadets prior to demonstrating the techniques for measuring distances.

## MEASURE DISTANCE ON A CHART

In marine navigation the term “mile” does not refer to the land or statute mile, it refers to the nautical mile.



A nautical mile (M) measures 1853 m or 2000 yards.

A statute mile (mi) measures 1609.3 m or 1760 yards.

When measuring distance on Mercator charts, always measure from the latitude scale. The longitude scale cannot be used as the meridians of longitude converge at the poles. Therefore they are not truly parallel.



Meridians of longitude only project distance accurately at one location on the globe—the equator.

As mentioned in TP 2, the latitude scale is divided into degrees, minutes and seconds. However, when measuring distances on a chart, it is more common to use minutes and tenths of a minute.

Latitude can be divided into:

- One degree of latitude equals 60 minutes.
- One minute of latitude equals 1 M.
- One minute can be further divided into tenths (as illustrated in Figure 4).



One M is 2000 yards long. Therefore 1/10th of a M is equal to 200 yards or one cable. In navigation, it is common for distance to be referred to in cables up to 1 M.

### Technique for Measuring a Short Distance on a Chart

Distance is measured on charts using dividers. A good rule of thumb for using dividers is to keep the angle between the legs less than 60 degrees. If the dividers are opened more than 60 degrees, the accuracy of the measurement is lessened.

Follow these steps for measuring short distances on a chart:

1. Set one point of the dividers at the first point and the other at the second point. Ensure the dividers are not opened more than 60 degrees.
2. Being careful not to disturb the position of the dividers, move them to the latitude scale on either side of the chart.
3. Place one point on a whole minute of latitude and let the other point fall along the scale line.
4. Read the distance in nautical miles and tenths of miles.

Example of measuring a short distance:



Demonstrate and have the cadets perform each of the following steps.

Arachne Rf. is located south of Moresby Island in Prevost Passage.

Pt. Fairfax is located on the south end on Moresby Island.

To measure the distance between Arachne Rf. light and Pt. Fairfax light:

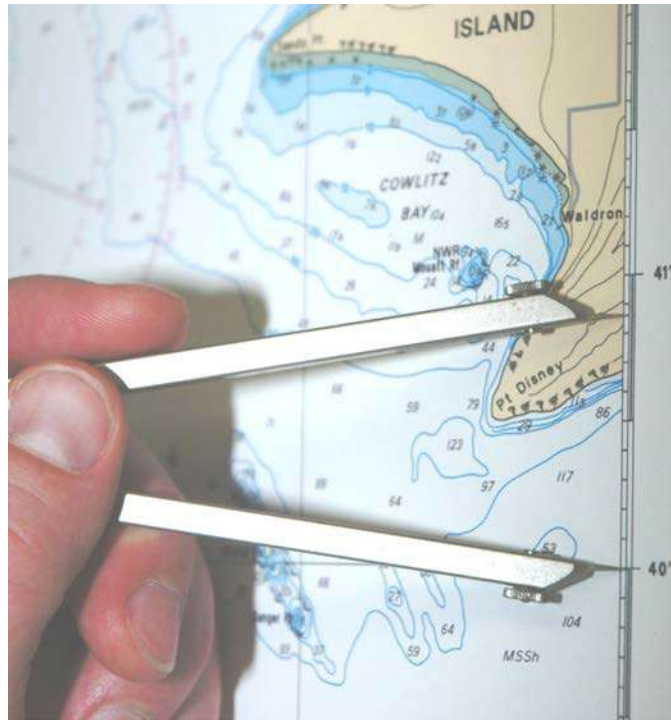
1. Place one point on the symbol for Arachne Rf. light.
2. Open the dividers until the second point is on the symbol for Pt. Fairfax light.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 9 Measuring the Distance Between Arachne Rf. and Pt. Fairfax Step 2

3. Being careful not to disturb the position of the dividers, move them to the latitude scale on the right side of the chart.
4. Place one point on the line marking  $48^{\circ} 40' N$ .
5. Place the second point on the scale above this line and count the number of marks between the points in this example the distance is 0.86 M.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 10 Measuring the Distance Between Arachne Rf. and Pt. Fairfax Step 5



When measuring from symbols for lights, the points of the dividers are placed on the black dot at the bottom of the symbol.

### Technique for Measuring a Longer Distance on a Chart

A long distance is defined as a distance that cannot be measured within the width of a pair of dividers opened to no more than 60 degrees.

Follow these steps for measuring long distances on a chart:

1. Preset your dividers to a whole mile or a multiple-mile increment.
2. Align one edge of the parallel ruler between the two points.



A parallel ruler is used to align the two points to assist the cadets with walking the dividers along a straight line. With practice, the ruler will no longer be required.

3. Place one point of the dividers at the first point and lay the other along the parallel ruler toward the second point.
4. Being careful not to disturb the position of the dividers, swing or walk them along the ruler to the second point.
5. Count the number of times the dividers swing or walk along the ruler without passing the second point.

If the second point has not been reached but is within the distance the dividers have been set measure the remaining distance as follows:

- Without removing the point of the dividers on the chart, compress the other arm of the dividers carefully and place its point on the destination.
- Being careful not to disturb the opening, move your dividers to the latitude scale and measure the distance. Add the number of swings from Step 5 and the distance in Step 6 to get the total distance.

Example of measuring a long distance:



Demonstrate and have the cadets perform each of the following steps.

Sandy Pt. is located on Waldron Island on the west side of the chart.

Gowlland Pt. is located on the south end of North Pender Island.

To measure the distance between Sandy Pt. and Gowlland Pt. light:

- Measure 1 M from the latitude scale with the dividers.

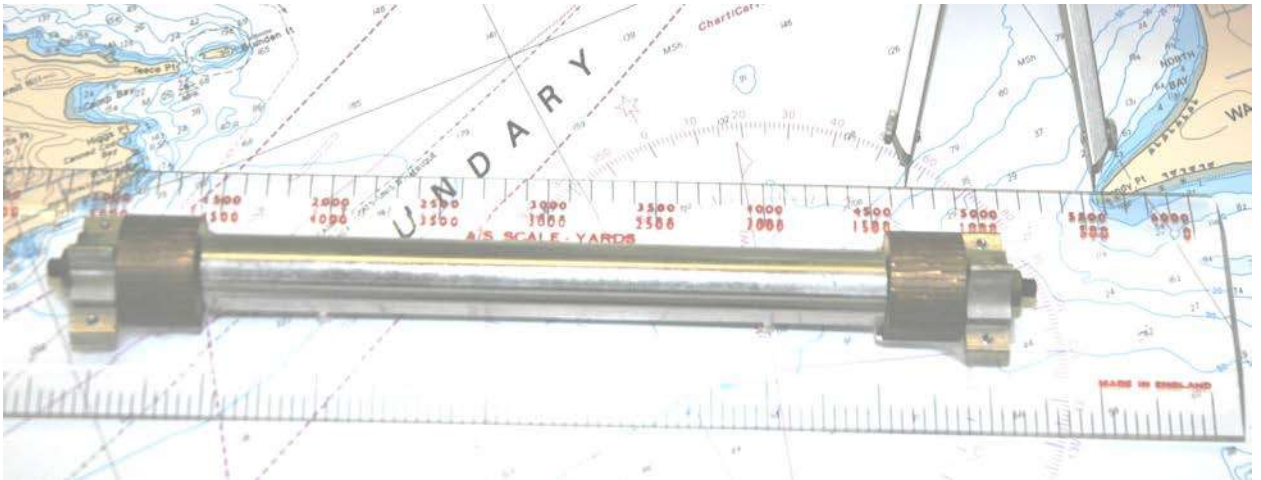


*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 11 Measuring the Distance Between Gowlland Pt. and Sandy Pt. Step 1

- Align the parallel ruler between Sandy Pt. and Gowlland Pt. light.
- Place one point of the dividers on the outer edge of Sandy Pt.
- Lay the dividers along the edge of the parallel ruler.

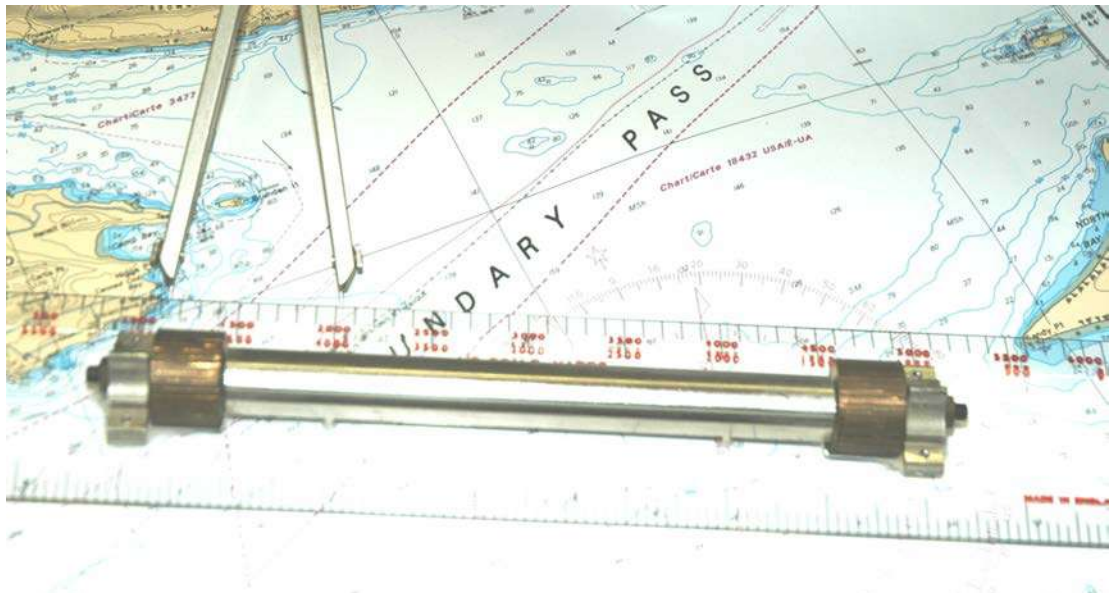




*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 12 Measuring the Distance Between Gowlland Pt. and Sandy Pt. Steps 3 and 4

5. Being careful not to disturb the position of the dividers, swing or walk them along the ruler toward Gowlland Pt.
6. Count the number of swings made with the dividers.
7. From Sandy Pt. to Gowlland Pt. it takes five swings. Since the dividers were set to 1 M in Step 1, the distance is 5 M.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 13 Measuring the Distance Between Gowlland Pt. and Sandy Pt. Step 5



Have the cadets practice measuring distances between the following points:

1. Kellet Bluff Lt. to Wymond Pt. = 2.7M
2. Separation Pt. to Burial Is = 1.6M

3. Patricia Bay Jetty to Mill Bay Jetty = 3.95M
4. Thieves Bay light to Kellett Bluff light = 11.88M

---

### CONFIRMATION OF TEACHING POINT 3

---

#### QUESTIONS:

- Q1. What is the maximum opening used on dividers when measuring distances?
- Q2. What does the term mile refer to in navigation?
- Q3. How long is a nautical mile in yards?

#### ANTICIPATED ANSWERS:

- A1. 60 degrees.
- A2. The nautical mile.
- A3. 2000.

---

### END OF LESSON CONFIRMATION

---

The cadets' completion of the worksheets will serve as the confirmation of this lesson.

---

### CONCLUSION

---

#### HOMEWORK / READING / PRACTICE

Nil.

#### METHOD OF EVALUATION

This EO is assessed IAW A-CR-CCP-604/PG-001, *Phase Four Qualification Standard and Plan*, Chapter 3, Annex B, 423 PC.

#### CLOSING STATEMENT

Latitude and longitude are the fundamental aspects of chartwork. Knowing how to use latitude and longitude to plot positions and to measure distance will lead to a safe passage plan.

#### INSTRUCTOR NOTES / REMARKS

Nil.

---

### REFERENCES

---

C1-165 ISBN 1-57409-052-6 Larkin, F. (1998). *Basic coastal navigation*. Dobbs Ferry, NY: Sheridan House Inc.

## LATITUDE AND LONGITUDE WORKSHEET

Object	Latitude Longitude	Symbol
0800  Voyage begins	48° 47.11' N	
	123° 20.7' W	
0830	48° 43.55' N	
	123° 17.51' W	
0900	48° 42.21' N	
	123° 12.6' W	
0930	48° 41.76' N	
	123° 07.43' W	
1000	48° 38.7' N	
	123° 05.98' W	
1030  Voyage ends	48° 36.76' N	
	123° 05.84' W	

THIS PAGE INTENTIONALLY LEFT BLANK

## LATITUDE AND LONGITUDE ANSWER KEY

Object	Latitude Longitude	Symbol
0800 Voyage begins	48° 47.11' N 123° 20.7' W	Ferry Track
0830	48° 43.55' N 123° 17.51' W	100 m Contour
0900	48° 42.21' N 123° 12.6' W	Special Notes for Turn Point Special Operating Area
0930	48° 41.76' N 123° 07.43' W	Centre of Compass Rose
1000	48° 38.7' N 123° 05.98' W	Eddy or Whirlpool
1030 Voyage ends	48° 36.76' N 123° 05.84' W	Rock that dries 0.9 m above Chart Datum

THIS PAGE INTENTIONALLY LEFT BLANK

## POSITION WORKSHEET

Object	Description	Latitude Longitude
Dock I. light	On west side of Dock I. located east of Sidney Harbour.	
Repulse Rk. day mark	West of Elbow Pt. in Squally Reach (Lower left corner of the chart).	
Wreck located in Reid Harbour	West side of Stuart Island in Haro Strait.	
Hay Pt. light	In Bedwell Harbour on South Pender Island.	
Fir Cone Pt. light	North west end of Coal Island in Colbourne Passage.	
Sidney Island light	Small islet northwest of Sidney Island. East of Sidney.	

THIS PAGE INTENTIONALLY LEFT BLANK



## POSITION ANSWER KEY

Object	Description	Latitude Longitude
Dock I. light	On west side of Dock I. located east of Sidney Harbour.	48° 40.29' N
		123° 21.40' W
Repulse Rk. day mark	West of Elbow Pt. in Squally Reach (Lower left corner of the chart).	48° 32.77' N
		123° 32.39' W
Wreck located in Reid Harbour	West side of Stuart Island in Haro Strait.	48° 40.20' N
		123° 11.27' W
Hay Pt. light	In Bedwell Harbour on South Pender Island.	48° 44.69' N
		123° 23.30' W
Fir Cone Pt. light	Northwest end of Coal Island in Colbourne Passage.	48° 41.48' N
		123° 23.30' W
Sidney Island light	Small islet northwest of Sidney Island. East of Sidney.	48° 39.22' N
		123° 20.75' W

THIS PAGE INTENTIONALLY LEFT BLANK



## ROYAL CANADIAN SEA CADETS

### PHASE FOUR

### INSTRUCTIONAL GUIDE



### SECTION 4

### EO M423.04 – PLOT A FIX

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-604/PG-001, *Phase 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 Plot a Fix handout located at Attachment A for each cadet.

Set up the classroom or training area so that cadets can work in pairs at tables suitable for chartwork.

#### PRE-LESSON ASSIGNMENT

Nil

#### APPROACH

A demonstration and performance was chosen for TPs 1–3 as it allows the instructor to explain and demonstrate types of fixes while providing an opportunity for the cadets to practice the skills under supervision.

A practical activity was chosen for TP 4 as it is an interactive way for the cadets to plot a fix on a chart. This activity contributes to the development of navigation skills in a fun and challenging way.

### INTRODUCTION

#### REVIEW

Nil.

#### OBJECTIVES

By the end of this lesson the cadet shall have plotted a fix, complete with track and dead reckoning.

#### IMPORTANCE

It is important for cadets to plot a fix complete with track and dead reckoning because it estimates a future position and contributes to the safety of the vessel.

**Teaching Point 1****Explain, demonstrate and have the cadets plot a position on a chart using a line of position fix.**

Time: 10 min

Method: Demonstration and Performance



To better understand the principles outlined, it is important to know the following terms:

**Heading.** The direction in which the bow of the small craft is pointing. Headings are expressed in degrees (°)—000 through 360.

**Bearing.** A line of position sighted from a small craft to another object. Only true bearings can be plotted on charts.

**Lines of Position (LOPs).** Lines that are plotted on a chart for the bearings taken from objects.

**Fix.** The intersection of two or more LOPs. While a fix can be made with two LOPs, it is considered more accurate to use three LOPs in every fix. An ideal three-bearing fix should have 60-degree angles between the LOPs.



True bearings are obtained from a gyrocompass. Small craft are not normally fitted with a gyrocompass due to their weight and size.

If taking bearings from a small craft, a handheld magnetic compass may be used to obtain the bearings. However, these bearings must be converted to true bearings before plotting them on a chart.



Throughout this TP, all bearings given in examples and exercises are to be considered true bearings.

**LINE OF POSITION**

Bearings that are plotted on a chart are referred to as LOPs and are measured on the outer ring of the compass rose with a parallel ruler. A position can only be located when two or more LOPs cross.

Example: Plot the following fix on *Chart 3441*:

0800	LHE Stuart Island	173°
	Tom Pt light	287°

To plot an LOP on a chart, use the following steps:

1. Align one edge of the parallel ruler with the centre of the compass rose and the number of degrees on the outer circle. In this case LHE Stuart Island bears 173°.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 1 Line of Position Step 1

2. Roll or walk the ruler until the edge used aligns with the object from which the bearing was taken.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 2 Line of Position Step 2

3. Draw a line away from the object along the ruler.
4. Draw an arrow on the end of the line away from the object from which the bearing was taken.



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure 3 Line of Position Steps 3 and 4

5. Repeat Steps 1–4 for the second bearing. After the first LOP is plotted, the last LOP is only drawn across the first LOP plotted.
6. Once LOPs are drawn they can be shortened to the same size as the diameter of a quarter.
7. To finish the fix, circle the intersection of the LOPs and mark the time of the fix in the upper right corner.



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure 4 Line of Position Steps 6 and 7

---

## CONFIRMATION OF TEACHING POINT 1

---

The cadets' plotting an LOP will serve as the confirmation of this TP.

---

### Teaching Point 2

**Explain, demonstrate and have the cadets plot a navigational track on a chart.**

Time: 10 min

Method: Demonstration and Performance

---

### NAVIGATIONAL TRACK

A navigational track is a line that shows a projected course from a given position. It is commonly referred to as a track (TR). To plot a track on a chart, follow these steps:



Use the plotted position from TP 1 to continue demonstrating how to plot a navigational track.

Example: Plot the following fix on *Chart 3441*:

0800	LHE Stuart Island	173°
	Tom Pt light	287°
	Course	335°

### Plotting

1. Plot the position on a chart (use the plotted position from TP 1).
2. Align one edge of the parallel ruler with the centre of the compass rose and the number of degrees being steered (course) on the outer circle.
3. Roll or walk the ruler until the edge aligns with the plotted position.



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure 5 Plotting a Track Steps 3 and 4

4. Draw a line away from the fix along the ruler in the direction of the course.
5. Draw an arrow on the end of the line showing the direction of the course.



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure 6 Plotting a Track Step 5



## Labelling

When a track is drawn on a chart, it must be labelled for future reference. They are always drawn showing a True heading. To label the course on the track, place the course above the track and toward the point of departure. Label the course using three digits (eg, 084°) preceded with an uppercase C (as illustrated in Figure 7).



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 7 Labelling a Track

---

## CONFIRMATION OF TEACHING POINT 2

---

The cadets' plotting a navigational track will serve as the confirmation of this TP.

### Teaching Point 3

**Explain, demonstrate and have the cadets plot a dead reckoning position on a chart.**

Time: 10 min

Method: Demonstration and Performance

---

## DEAD RECKONING

Dead reckoning (DR) is the continuous plotting of a course and position based on known facts. The facts used when making calculations for a DR include;

- time,
- speed,
- distance, and
- course steered.

Some reasons to maintain a plot of the dead reckoned positions are:

- very rapid determination of your approximate position in the event of an emergency;
- knowledge of approximate position in order to render assistance to another vessel in an emergency;
- to be able to plot the safest and shortest course to a desired destination; and
- to be able to make important decisions as to the proper action in the event of adverse conditions, such as:
  - fog,
  - wind,
  - storm, and
  - equipment failure.

The calculations for plotting a DR are derived through standard speed-time-distance calculations.



Speed-time-distance calculations have been previously taught in EO M423.02 (Use Navigation Instruments).

A DR is normally made at 6-minute intervals to make calculations simple. A 6-minute interval is equal to 1/10 of an hour; therefore, the distance travelled is 1/10 of your speed.

It is good practice to plot two DRs, one at 6 minutes and one at 12 minutes because it gives a better view into the future safety of the vessel, especially in close navigable waters.

A DR position is indicated by placing a small line across the course and the time alongside. A small cross may be used to originate the DR if a fix or estimated position is not available.

### Plotting



Use the plotted information from TP 2 to continue demonstrating how to plot a DR position.

To plot a DR on a chart, follow these steps:

1. Determine distance traveled in 6 minutes.

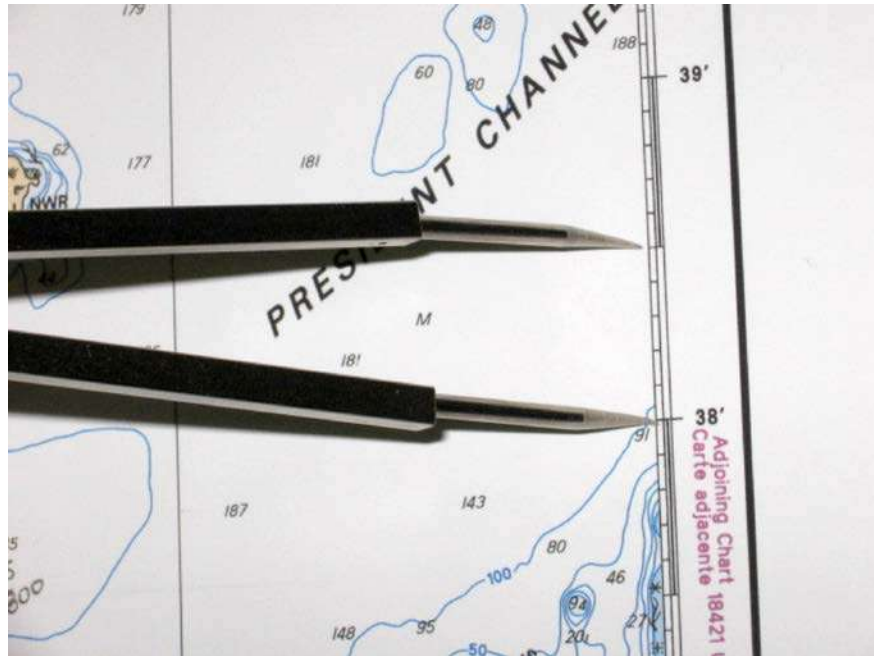


For this example use a speed of 5 knots (kns) and time of 6 minutes (1/10 hour), equalling a distance of 0.5 nautical mile (M).



Measuring distances has been previously taught in EO M423.03 (Describe Latitude and Longitude).

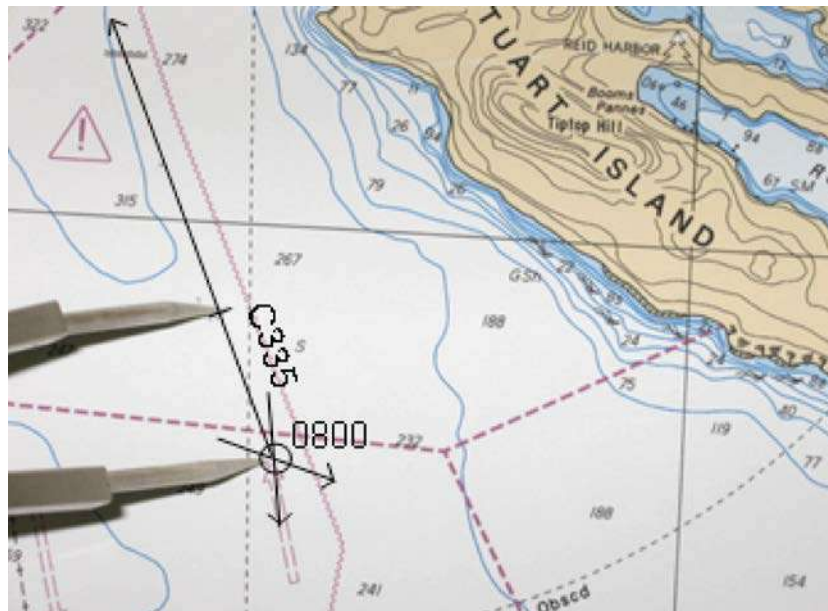
2. Measure 0.5 M of distance on the latitude scale.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 8 Plotting a DR Step 2

3. Mark the DR position 1 M (6 mins) from the plotted position and then a second DR position 1 M (6 mins) from the first DR.



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure 9 Plotting a DR Step 3



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure 10 Plotting a DR Step 3

### Labelling

Each DR drawn on a chart must be labelled for future reference. A DR is labelled with the time in minutes (as illustrated in Figure 11).



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure 11 Labelling a DR

---

### CONFIRMATION OF TEACHING POINT 3

---

The cadets' plotting a DR position will serve as the confirmation of this TP.

**Teaching Point 4****Conduct an activity where the cadets will plot a fix.**

Time: 20 min

Method: Practical Activity

**ACTIVITY****OBJECTIVE**

The objective of this activity is to have the cadets practice plotting a fix, to include:

- line of position fix,
- navigational track, and
- dead reckoning.

**RESOURCES**

- Chart 3441 Haro Strait, Boundary Pass and / et Satellite Channel, and
- Navigation instruments.

**ACTIVITY LAYOUT**

1. Place *Chart 3441* and navigation instruments on each table.
2. Have the cadets sit in pairs at the tables.

**ACTIVITY INSTRUCTIONS**

1. On *Chart 3441*, have the cadets plot the following fixes:

0900	Gowland Pt.	025°	0930	Thieves Bay light	050°
	Wallace Pt.	319°		Beaver Pt. light	310°
	Course	295°		Course	160°
	Speed	10 kns		Speed	10 kns
1000	RHE Russell I.	000°	1030	Pt. Fairfax light	090°
	Kanaka Bluff light	060°		Dock I. light	190°
	Speed	255°		Course	100°
		10 kns		Speed	10 kns

2. Have the cadets determine which of the DRs will take the vessel into danger of running aground.



The fix at 0930 will lead you onto Moresby Island before the DR at 0942.



If the fixes are plotted correctly, the following symbols should be identified:

0900—Border between Canada and USA.

0930—64 m depth.

1000—Contour line around 34 m hole.

1030—44 m depth.

Check to ensure the cadets are using the correct symbols for a fix:

1. Arrows away from the object.
2. Circle around the intersection of the LOPs.
3. Four digit time next to the fix.
4. Each fix no larger than the diameter of a quarter.
5. Each track has two DRs 1 M apart



Ensure the cadets scrub the charts at the end of the activity.

## SAFETY

Nil.



Distribute the Plot a Fix handout located at Attachment A to each cadet.

---

## CONFIRMATION OF TEACHING POINT 4

---

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

---

## END OF LESSON CONFIRMATION

---

The cadets' plotting a fix during the activity in TP 4 will serve as the confirmation of this lesson.

---

## CONCLUSION

---

## HOMEWORK / READING / PRACTICE

Nil.

## METHOD OF EVALUATION

This EO is assessed IAW A-CR-CCP-604/PG-001, *Phase Four Qualification Standard and Plan*, Chapter 3, Annex B, 423 PC.

## CLOSING STATEMENT

Plotting a fix with a track and dead reckoning are fundamentals of navigation. Knowing where you are and where you will be at any given time leads to safe navigation.

**INSTRUCTOR NOTES / REMARKS**

Nil.

---

**REFERENCES**

---

C1-164 C-57-007-002/AF-001 Royal Navy. (1987). *Admiralty manual of navigation* (Vol. 1). (Rev. 1987). London, England: Her Majesty's Stationery Office.

C1-165 ISBN 1-57409-052-6 Larkin, F. (1998). *Basic coastal navigation*. Dobbs Ferry, NY: Sheridan House Inc.

C1-170 ISBN 0-9694958-0-3 Saunders, A. E. (1990). *Small craft piloting & coastal navigation*. Halifax, NS: Binnacle Navigation Instrument.

THIS PAGE INTENTIONALLY LEFT BLANK



## PLOT A FIX

### TERMINOLOGY

**Heading.** The direction in which the bow of the small craft is pointing. Headings are expressed in degrees ( $^{\circ}$ ) —000 through 360.

**Bearing.** A line of position sighted from a small craft to another object. Only true bearings can be plotted on charts.

**Fix.** The intersection of two or more LOPs. While a fix can be made with two LOPs, it is considered more accurate to use three LOPs in every fix. An ideal three-bearing fix should have 60-degree angles between the LOPs.

**Line of Position (LOP).** Bearings that are plotted on a chart and are measured on the outer ring of the compass rose with a parallel ruler. A position can only be located when two or more LOPs cross.

**Navigational Track.** A line that shows a projected course from a given position. It is commonly referred to as a track (TR).

### LABELLING

When a track is drawn on a chart, it must be labelled for future reference. They are always drawn showing a True heading. To label the course on the track, place the course above the track and toward the point of departure. Label the course using three digits (eg, 084 $^{\circ}$ ) preceded with an uppercase C (eg, C 084 $^{\circ}$ )



*Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.*

Figure A-1 Labelling a Track

### DEAD RECKONING

Dead Reckoning (DR) is the continuous plotting of a course and position based on known facts. The facts used when making calculations for a DR include:

- time,
- speed,

- distance, and
- course steered.

Some reasons to maintain a plot of the dead reckoned positions are:

- very rapid determination of your approximate position in the event of an emergency;
- knowledge of approximate position in order to render assistance to another vessel in an emergency;
- to be able to plot the safest and shortest course to a desired destination; and
- to be able to make important decisions as to the proper action in the event of adverse conditions, such as:
  - fog,
  - wind,
  - storm, and
  - equipment failure.

The calculations for plotting a DR are derived through standard speed-time-distance calculations.

A DR is normally made at 6-minute intervals to make calculations simple. A 6-minute interval is equal to 1/10 of an hour; therefore, the distance travelled is 1/10 of your speed.

It is good practice to plot two DRs, one at 6 minutes and one at 12 minutes because it gives a better view into the future safety of the vessel, especially in close navigable waters.

A DR position is indicated by placing a small line across the course and the time alongside. A small cross may be used to originate the DR if a fix or estimated position is not available.

### Plotting

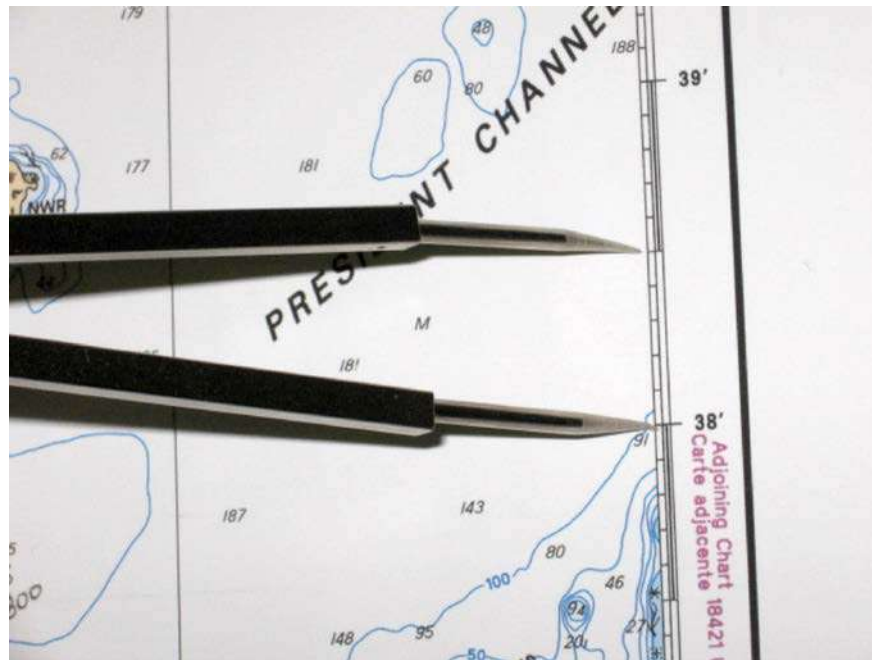
To plot a DR on a chart, follow these steps:

1. Determine distance traveled in 6 minutes.



For this example use a speed of 5 knots (kns) and time of 6 minutes (1/10 hour), equalling a distance of 0.5 nautical mile (M).

2. Measure 0.5 M of distance on the latitude scale.



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure A-2 Plotting a DR Step 2

3. Mark the DR position 1 M (6 mins) from the plotted position and then a second DR position 1 M (6 mins) from the first DR.



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure A-3 Plotting a DR Step 3



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure A-4 Plotting a DR Step 3

### Labelling

Each DR drawn on a chart must be labelled for future reference. A DR is labelled with the time in minutes (as illustrated in Figure A-5).



Note. Created by Director Cadets 3, 2009, Ottawa, ON: Department of National Defence.

Figure A-5 Labelling a DR



## ROYAL CANADIAN SEA CADETS

### PHASE FOUR

### INSTRUCTIONAL GUIDE



### SECTION 5

### EO C423.01 – PLOT A POSITION USING A THREE-BEARING FIX

---

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-604/PG-001, *Phase 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.

Set up the classroom or training area so that cadets can work in pairs at tables suitable for chartwork.

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

A demonstration and performance was chosen for TP 1 as it allows the instructor to explain and demonstrate a three-bearing fix while providing an opportunity for the cadet to practice the skills under supervision.

A practical activity was chosen for TP 2 as it is an interactive way for the cadets to plot a position on a chart using a three-bearing fix. This activity contributes to the development of navigation skills in a fun and challenging way.

---

### INTRODUCTION

---

#### REVIEW

Nil.

#### OBJECTIVES

By the end of this lesson the cadet shall be expected to plot a position using a three-bearing fix.

#### IMPORTANCE

It is important for cadets to plot a three-bearing fix as it is an accurate way of fixing a position by a visual means. Plotting a fix ensures the small vessel's safety during navigation.

**Teaching Point 1****Demonstrate and have the cadets plot a position on a chart using a three-bearing fix.**

Time: 25 min

Method: Demonstration and Performance



To better understand the principles outlined, it is important to know the following terms:

**Heading.** The direction in which the bow of the small craft is pointing. Headings are expressed in degrees ( $^{\circ}$ )—000 through 360.

**Bearing.** A line of position sighted from a small craft to another object. Only true bearings can be plotted on charts.

**Lines of Position (LOPs).** Lines that are plotted on a chart for the bearings taken of objects.

**A fix.** The intersection of two or more LOPs. While a fix can be made with two LOPs, it is considered more accurate to use three LOPs in every fix. An ideal three-bearing fix should have 60-degree angles between the LOPs.



True bearings are obtained from a gyrocompass. Small craft are not normally fitted with a gyrocompass due to their weight and size.

If taking bearings from a small craft, a handheld magnetic compass may be used to obtain the bearings. However, these bearings must be converted to true bearings before plotting them on a chart.



Throughout this TP, all bearings given in examples and exercises are to be considered true bearings.

**Three-Bearing Fix**

In order to plot a three-bearing fix, three LOPs must cross at a specific point.



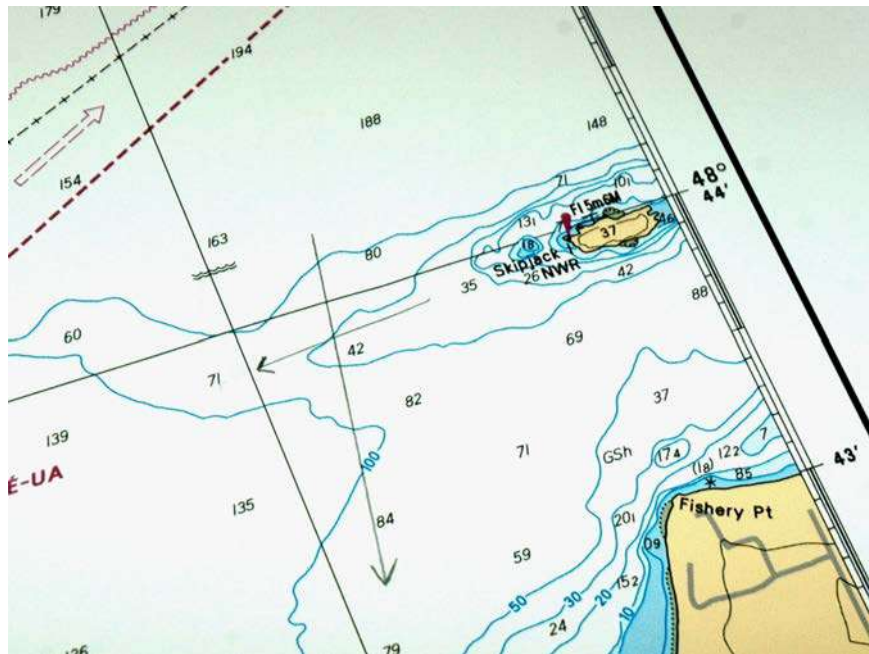
Cadets will follow along with the instructor as the following bearings are plotted.

Example: Plot the following fix on *Chart 3441*:

	East Pt. light	010 $^{\circ}$
0800	Skipjack I. light	085 $^{\circ}$
	Monarch Hd.	326 $^{\circ}$

1. Align the parallel ruler with the centre of the compass rose and 010 $^{\circ}$  on the outer ring of the compass rose.
2. Roll the ruler along the chart until the edge aligns with East Pt. light.

3. Draw a line from the light along the ruler.
4. Repeat Steps 1–3 for the other two bearings. After the first LOP is plotted, the remaining LOPs are only drawn across the first LOP plotted.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 1 Three-Bearing Fix Step 4

5. Once an LOP is drawn it can be shortened to the same size as the diameter of a quarter.

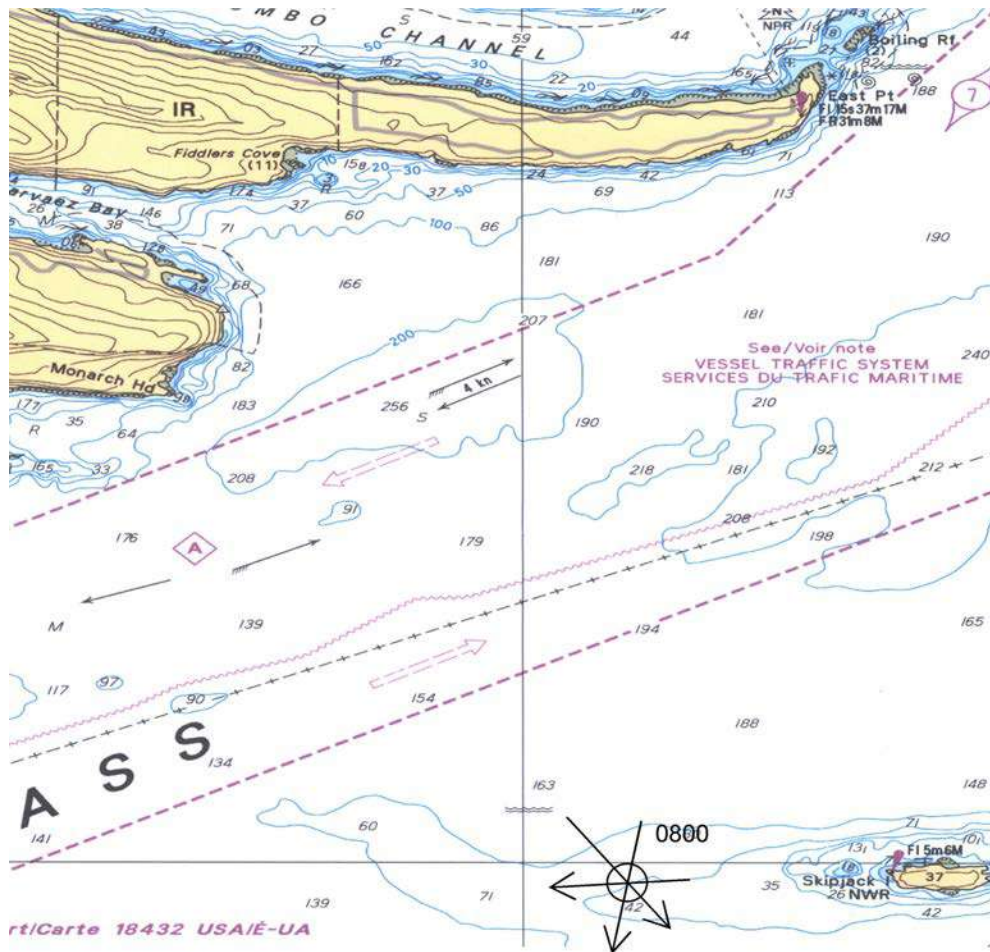


Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure 2 Three-Bearing Fix Step 5

6. Draw arrows at the outer ends of the LOPs pointing away from the object. These arrows indicate the direction in which the observer must lie from the observed object.
7. Circle the intersection of the three LOPs and label with the four digit time the bearings were taken next to the fix.





Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure 3 Three-Bearing Fix Step 7



When plotting LOPs, plot from the black dot at the bottom of the symbol or from the edge of the points of land.



When referring to edges of land, it is common to use RHE for right-hand edge and LHE for left-hand edge.

### CONFIRMATION OF TEACHING POINT 1

#### QUESTIONS:

- Q1. How long are the lines of the fix?
- Q2. When drawing the arrows on the LOPs, which way do the arrows point?
- Q3. What does LHE and RHE mean?

**ANTICIPATED ANSWERS:**

- A1. The diameter of a quarter.  
 A2. Away from the object.  
 A3. Left-hand edge and right-hand edge.

**Teaching Point 2**

**Conduct an activity where the cadets will plot positions on a chart using three-bearing fixes.**

Time: 25 min

Method: Practical Activity

**ACTIVITY****OBJECTIVE**

The objective of this activity is to familiarize the cadets with using LOPs to plot a position using a three-bearing fix.

**RESOURCES**

- *Chart 3441 Haro Strait, Boundary Pass and / et Satellite Channel*, and
- Navigation Instruments.

**ACTIVITY LAYOUT**

1. Place *Chart 3441* and navigation instruments on each table.
2. Have cadets sit in pairs at the tables.

**ACTIVITY INSTRUCTIONS**

On *Chart 3441*, have the cadets plot the following fixes:

0900	Gowlland Pt.	025°	0930	Thieves Bay light	050°
	Turn Pt.	225°		Canoe Rk. light	181°
	Wallace Pt.	319°		Beaver Pt. light	310°
1000	RHE Russell I.	000°	1030	Pt. Fairfax light	090°
	Isabella I. light	294°		Greig I. day mark	160°
	Kanaka Bluff light	060°		Dock I. light	190°



If the fixes are plotted correctly, the following symbols should be identified:

0900–Border between Canada and USA.

0930–64 m depth.

1000–Contour line around 34 m hole.

1030–44 m depth.

Check to ensure the cadets are using the correct symbol for a fix:

1. Arrows away from the object.
2. Circle around the intersection of the LOPs.
3. Four digit time next to the fix.
4. Each fix no larger than the diameter of a quarter.

### **SAFETY**

Nil.

---

### **CONFIRMATION OF TEACHING POINT 2**

---

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

---

### **END OF LESSON CONFIRMATION**

---

The cadets' completion of the activity in TP2 will serve as the confirmation of this lesson

---

### **CONCLUSION**

---

### **HOMEWORK / READING / PRACTICE**

Nil.

### **METHOD OF EVALUATION**

Nil.

### **CLOSING STATEMENT**

Locating a position on a chart is an important skill which cadets can use whenever they navigate small craft. Accurate navigation will allow the cadets to safely navigate and complete their objectives.

### **INSTRUCTOR NOTES / REMARKS**

Nil.

---

### **REFERENCES**

---

C1-165 ISBN 1-57409-052-6 Larkin, F. (1998). *Basic coastal navigation*. Dobbs Ferry, NY: Sheridan House Inc.

THIS PAGE INTENTIONALLY LEFT BLANK



## ROYAL CANADIAN SEA CADETS

### PHASE FOUR

### INSTRUCTIONAL GUIDE



### SECTION 6

### EO C423.02 – PLOT A POSITION USING A HORIZONTAL ANGLE FIX

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-604/PG-001, *Phase 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.

Set up the classroom or training area so that cadets can work in pairs at tables suitable for chartwork.

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

A demonstration and performance was chosen for TP 1 as it allows the instructor to explain and demonstrate plotting a horizontal angle fix while providing an opportunity for the cadet to practice the skills under supervision.

A practical activity was chosen for TP 2 as it is an interactive way for the cadets to plot a position on a chart using a horizontal angle fix. This activity contributes to the development of navigation skills in a fun and challenging way.

### INTRODUCTION

#### REVIEW

Nil.

#### OBJECTIVES

By the end of this lesson the cadet shall have plotted a position using a horizontal angle fix.

#### IMPORTANCE

It is important for cadets to know how to plot a horizontal angle fix as it is an accurate way of fixing a position by a visual means. Knowing how to plot a fix ensures the small vessel's safety during navigation.

**Teaching Point 1**

**Demonstrate and have the cadets plot a position on a chart using a horizontal angle fix.**

Time: 25 min

Method: Demonstration and Performance

**THE STATION POINTER**

The station pointer was invented in 1801 by Joseph Huddart of the United States Navy (USN). It is a simple tool used to fix, or locate a position on a chart when the relative bearings are known between three visible, fixed objects.

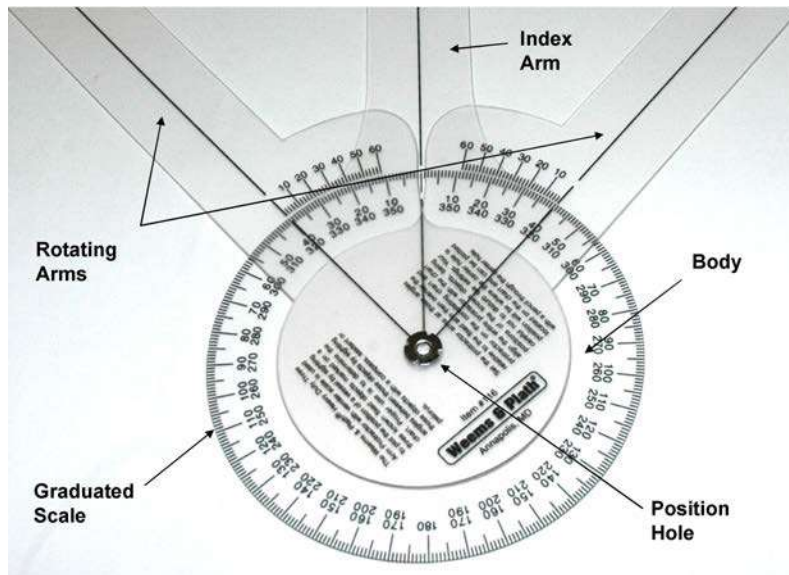


This type of fix is called a horizontal angle fix as it uses the difference in the angles between three points. Although it is not frequently used today, it can give a navigator an accurate fix when electronic position equipment or a gyrocompass is not available.

**Parts of a Station Pointer**

The following parts are found on a station pointer (as illustrated in Figure 1):

1. **Body.** A graduated circle.
2. **Position hole.** A hole in the centre of the body used to mark a position with the point of a pencil.
3. **Index arm.** Centre arm that is fixed to the body with its measurement line oriented to zero degrees on the circle. This arm is also referred to as the zero arm.
4. **Rotating arms.** Two arms, attached at the position hole that rotate freely around the body. The measurement lines on the arms overlay the graduated circle on the body.
5. **Graduated scale.** Marked in degrees around the circumference of the body.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 1 Parts of a Station Pointer



To better understand the principles outlined, it is important to know the following terms:

**Heading.** The direction in which the bow of the small craft is pointing. Headings are expressed in degrees ( $^{\circ}$ )—000 through 360.

**Bearing.** A line of position sighted from a small craft to another object. Only true bearings can be plotted on charts.

**Lines of Position (LOPs).** Lines that are plotted on a chart for the bearings taken of objects.

**A fix.** The intersection of two or more LOPs. While a fix can be made with two LOPs, it is considered more accurate to use three LOPs in every fix. An ideal three-bearing fix should have 60-degree angles between the LOPs.



True bearings are obtained from a gyrocompass. Small craft are not normally fitted with a gyrocompass due to their weight and size.

If taking bearings from a small craft, a handheld magnetic compass may be used to obtain the bearings. However, these bearings must be converted to true bearings before plotting them on a chart.



Throughout this TP, all bearings given in examples and exercises are to be considered true bearings.

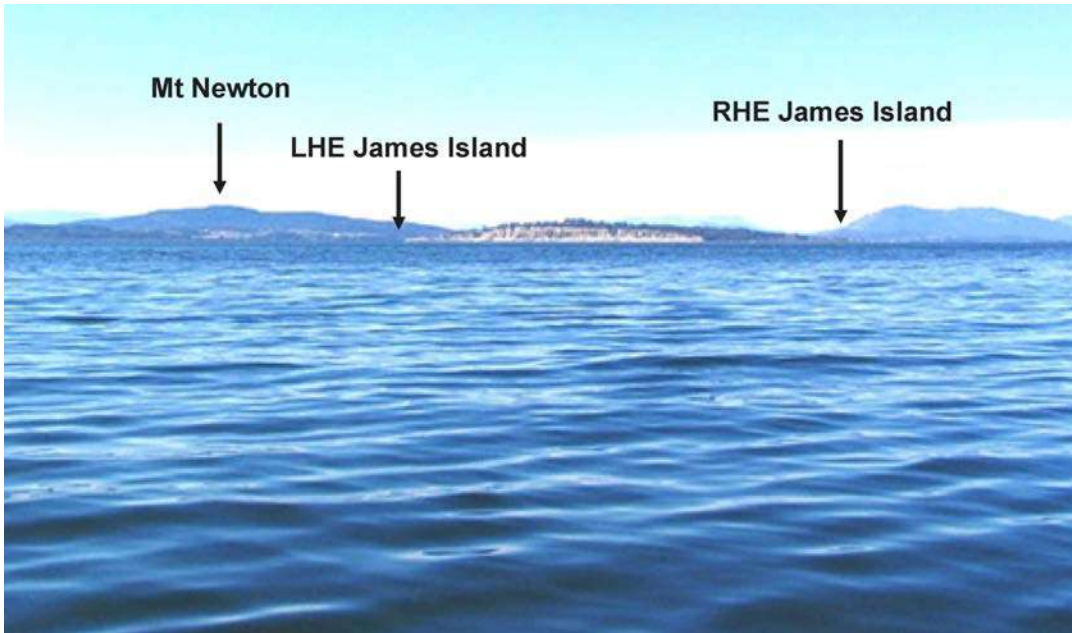
### HORIZONTAL ANGLE FIX



For the steps listed below, a magnetic compass is used. However, any navigational instrument that measures a bearing of an object can be used.

Use the following directions to plot a position on a chart using a station pointer:

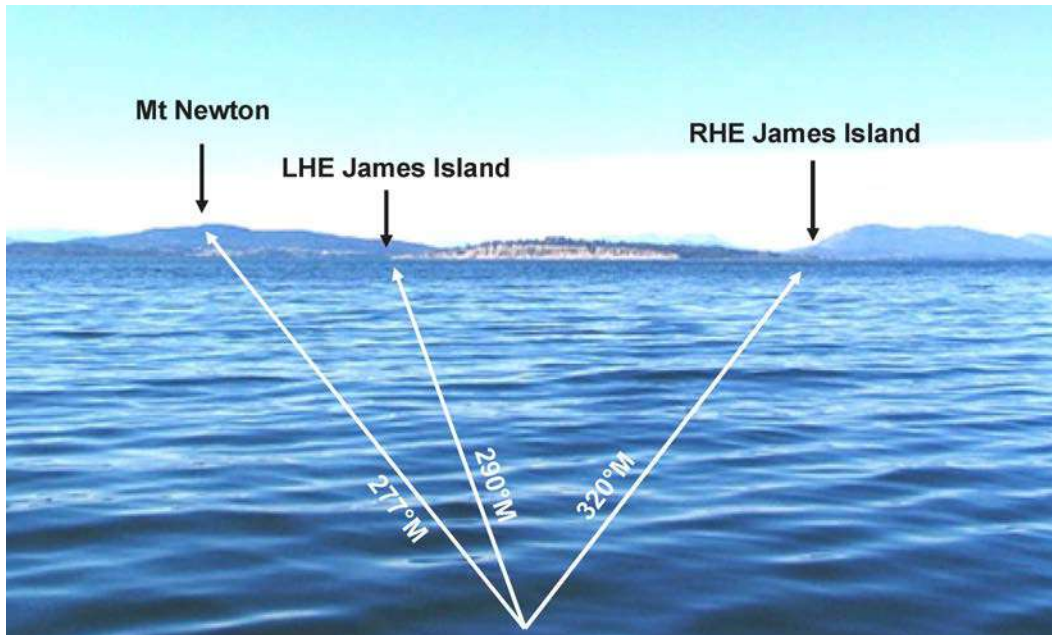
1. Identify three visible, fixed objects that can be found on the chart.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 2 Horizontal Angle Fix Step 1

- Using a hand-held compass, measure the bearing to the objects.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 3 Horizontal Angle Fix Step 2

- The angles for the fix will be written as:

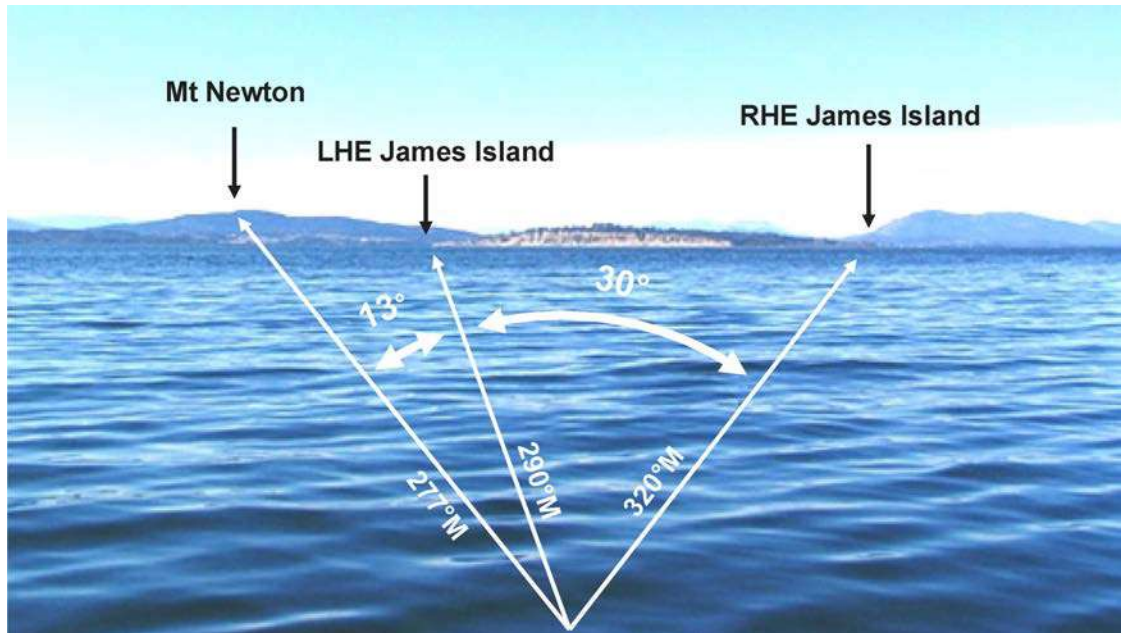
Mt. Newton	277°M
LHE James Island	290°M
RHE James Island	320°M





For the purposes of this TP, the middle bearing will be the index arm of the station pointer.

- Calculate the two relative bearings between the left and centre and the right and centre objects. These are known as the horizontal angles.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 4 Horizontal Angle Fix Step 4

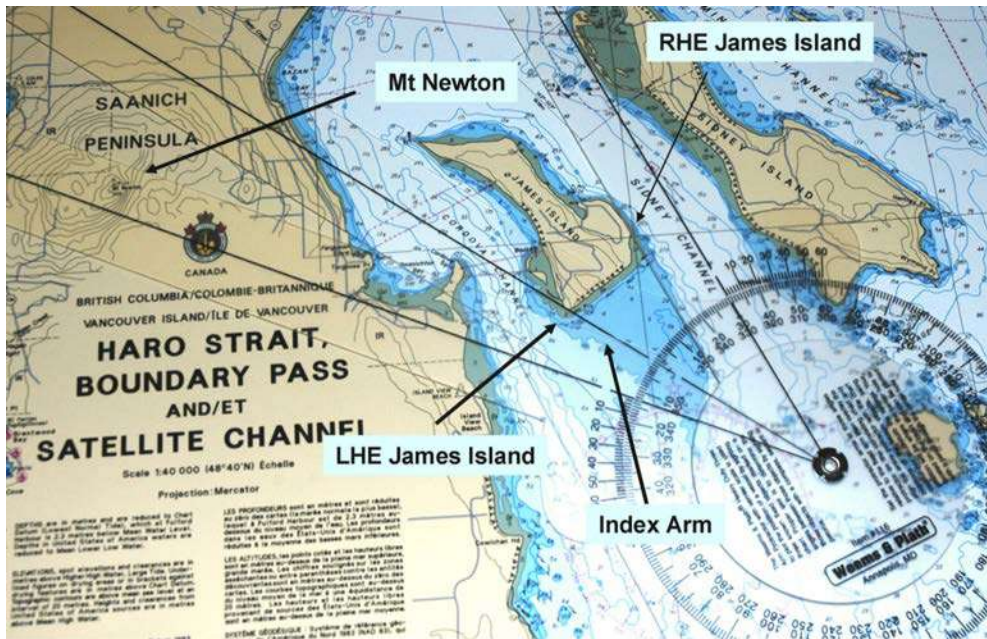
- Set the rotating arms of the station pointer to the relative bearings, calculated in Step 4, using the graduated scale.



*Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.*

Figure 5 Horizontal Angle Fix Step 5

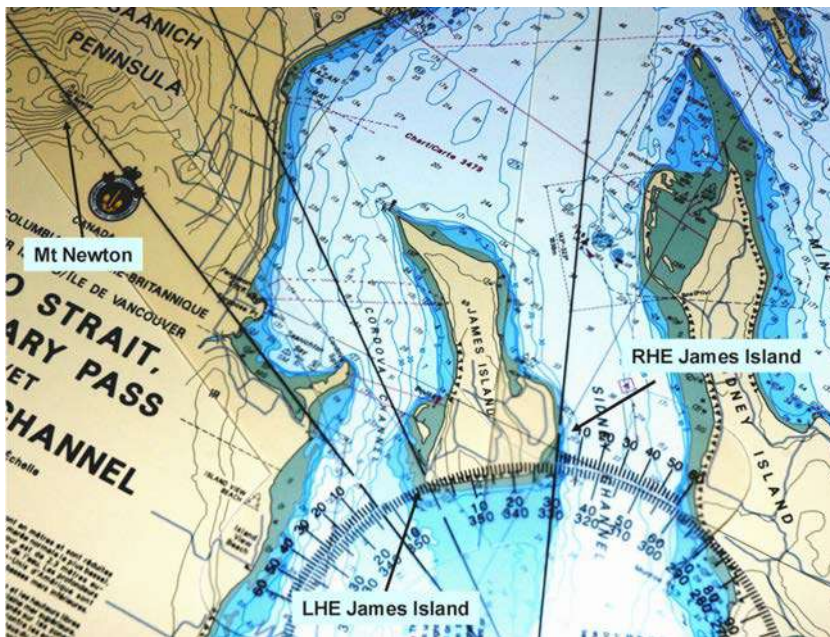
- Place the station pointer on the chart with the index arm passing through the centre object.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure 6 Horizontal Angle Fix Step 6

7. Slowly move the station pointer until all three arms are aligned with the three objects.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure 7 Horizontal Angle Fix Step 7

8. Using the point of a pencil, mark the position on the chart through the position hole.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure 8 Horizontal Angle Fix Step 8

9. Draw a small circle around the pencil mark and label the fix with 'HA' and the time.



Note. Created by Director Cadets 3, 2008, Ottawa, ON: Department of National Defence.

Figure 9 Horizontal Angle Fix Step 9



The fix is labelled with 'HA' to describe that the fix was obtained using horizontal angles.

---

**CONFIRMATION OF TEACHING POINT 1**

---

**QUESTIONS:**

- Q1. What is the label for a horizontal angle fix?
- Q2. How many bearings are taken for a horizontal angle fix?
- Q3. What do LHE and RHE mean?

**ANTICIPATED ANSWERS:**

- A1. HA.
- A2. Three.
- A3. Left-hand edge and right-hand edge.

**Teaching Point 2**

**Conduct an activity where the cadets will plot positions on a chart using Horizontal Angle fixes.**

Time: 25 min

Method: Practical Activity

---

**ACTIVITY**

---

**OBJECTIVE**

The objective of this activity is to familiarize the cadets with using LOPs to plot a position using a Horizontal Angle fix.

**RESOURCES**

- *Chart 3441 Haro Strait, Boundary Pass and / et Satellite Channel, and*
- Navigation Instruments.

**ACTIVITY LAYOUT**

1. Place *Chart 3441* and navigation instruments on each table.
2. Have cadets sit in pairs at the tables.

**ACTIVITY INSTRUCTIONS**

Have the cadets calculate the relative bearings and plot the following horizontal angle fixes (the middle bearing will be the index arm):

	Hay Pt.	300°		Arachne Rf Light	230°
1100	Turn Pt. light	340°	1130	Canoe Rk. light	250°
	Wallace Pt.	358°		Beaver Pt. light	280°
	Turn Pt. light	137°			
1200	Tom Pt. light	197°			
	Arachne Rf. light	247°			



To check the cadets work, the fixes are located at:

- 1100—Next to 243 degree mark on the compass rose.
- 1130—In south-bound traffic lane southwest of Gowlland Pt.
- 1200—Just north of 300 m contour in Swanson Channel.

### **SAFETY**

Nil.

---

### **CONFIRMATION OF TEACHING POINT 2**

---

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

---

### **END OF LESSON CONFIRMATION**

---

The cadets' completion of the activity will serve as the confirmation of this lesson

---

### **CONCLUSION**

---

### **HOMEWORK / READING / PRACTICE**

Nil.

### **METHOD OF EVALUATION**

Nil.

### **CLOSING STATEMENT**

Locating a position on a chart is an important skill that can be used when navigating a small craft.

### **INSTRUCTOR NOTES / REMARKS**

This lesson requires the use of a station pointer, which is a navigation instrument that the cadets have not been introduced to previously.

---

### **REFERENCES**

---

C1-164 C-57-007-002/AF-001 Royal Navy. (1987). *Admiralty manual of navigation* (Vol. 1). (Rev. 1987). London, England: Her Majesty's Stationery Office.

THIS PAGE INTENTIONALLY LEFT BLANK

**CHAPTER 15**  
**SIDC**







## ROYAL CANADIAN SEA CADETS

### INSTRUCTIONAL GUIDE



### SEAMANSHIP INTERDIVISIONAL COMPETITION

Total Time:

2 days

### PREPARATION

#### PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in the applicable Qualification Standard and Plan(s). 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.

Gather and prepare all resources required for the activities listed in this lesson. Setup stations IAW the activities.

Ensure an assistant instructor is available and prepared for each station to act as the Station OPI.

Photocopy as many copies as there are teams (divisions) of Attachment A to distribute to the Station OPI's.

Photocopy one copy of Attachment B for the Station OPI.

Photocopy, cut out and laminate one copy of the Boatswain's Call Cards located at Attachment C.

Photocopy, cut out and laminate one copy of the Task Cards located at Attachment D.

Photocopy one copy of Attachment E for each team (division).

Photocopy one copy of Attachment F for each cadet.

Photocopy, cut out and laminate one copy of the Secret Code Cards for each team (division).

#### PRE-LESSON ASSIGNMENT

Nil.

#### APPROACH

Practical activity was chosen for this lesson as it is an interactive way to allow the cadets to experience seamanship activities in a safe and controlled environment.

### INTRODUCTION

#### REVIEW

Nil.

## **OBJECTIVES**

By the end of this lesson the cadet shall be expected to participate in a seamanship interdivisional competition. The objective of the competition is to reinforce the following:

- seamanship knowledge and skills learned throughout the corps training;
- interest in seamanship;
- team-building skills;
- the divisional system; and
- leadership skills through various opportunities for the Phase Three, Four and Five cadets.

## **IMPORTANCE**

It is important for cadets to participate in this competition as it will reinforce many areas of skills and knowledge learned throughout the corps training. It will allow an opportunity for instructors to evaluate the cadets' knowledge and skills. It will provide a further opportunity for team-building for all members of the corps as it reinforces the divisional system and ensures all divisions and corps members work together and interact to meet a common goal. This competition is a great way to relieve boredom, lift team spirit, increase morale, re-energize the cadets and accomplish goals.

---

## ACTIVITY ONE—COIL AND HEAVE A LINE

---

Time: 30 min

---

### OBJECTIVE

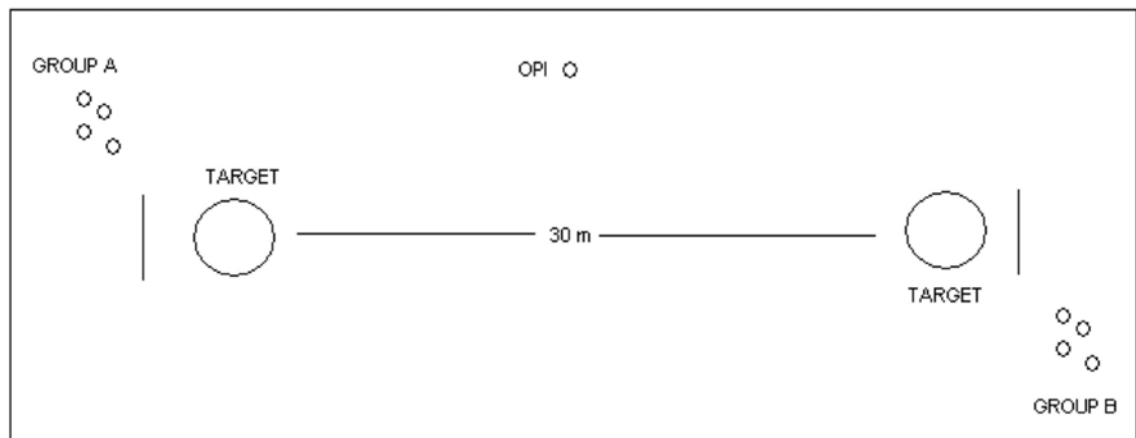
The objective of this activity is to have the cadets coil and throw a weighted heaving line to a target.

### RESOURCES

- Heaving line,
- Target (two),
- Whistle,
- Scoring sheet located at Attachment A, and
- Pen / pencil.

### ACTIVITY LAYOUT

- Place two targets on the ground approximately 30 m (100 feet) apart.
- Mark a line on the ground from which the cadets will heave a line at the opposite target.



*Note. Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.*

Figure 1 Coil and Heave a Line Activity Layout

### ACTIVITY INSTRUCTIONS

1. Divide each team (division) into two groups—Group A and Group B.
2. Assign each group a target station and a designated target.
3. Have one cadet from Group A step up to the line and throw a heaving line at the target. If the cadet is unsuccessful, they must retrieve the line and the next cadet from their group will attempt to hit the target.
4. Once Group A has hit the target, Group B must retrieve the line from their side and attempt to throw a heaving line at their assigned target.
5. The team (division) will be awarded one point for every successful target hit. Points will be accumulated until the time has expired or the activity is complete.



A homemade bollard can also be incorporated into this activity. In this situation, once the target has been successfully hit, the cadets would have to cleat the heaving line to the bollard before a point is awarded to the group. By doing this the cadets will be experiencing a small component of securing a ship to a dock or jetty.

### SAFETY

Ensure that no cadets are near the targets when the heaving line is being tossed.

---

## ACTIVITY TWO—BOATSWAIN'S CALL

Time: 30 min

---

### OBJECTIVE

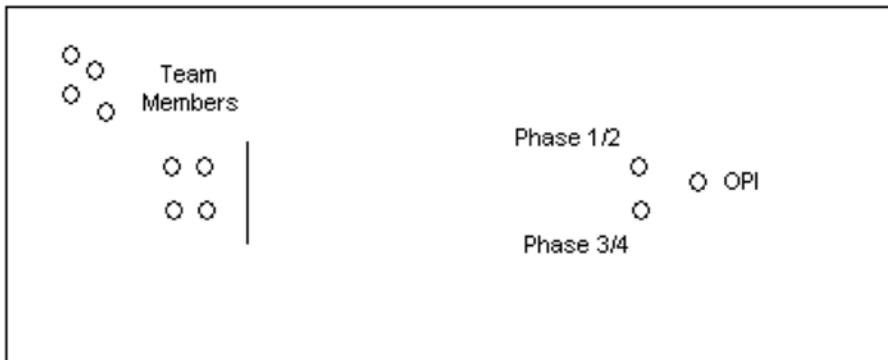
The objective of this activity is to have the cadets identify and sound different pipes.

### RESOURCES

- Boatswain's Call Cards located at Attachment C,
- Container to hold Boatswain's Call Cards,
- Boatswain's call,
- Cleaning supplies,
- Whistle,
- Scoring sheet located at Attachment A, and
- Pen / pencil.

### ACTIVITY LAYOUT

Place the boatswain's call and the Boatswain's Call Cards in a container and lay them near the OPI (as illustrated in Figure 2).



*Note. Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.*

Figure 2 Boatswain's Call Activity Layout

## ACTIVITY INSTRUCTIONS

1. Divide the team (division) into two groups by phase. The first group will consist of Phase One and Phase Two cadets and the second group will consist of Phase Three and Phase Four cadets.
2. Have each Phase One cadet partner with a Phase Three cadet and each Phase Two cadet with a Phase Four cadet.
3. Have one set of partners approach the station OPI. Have the Phase Three or Phase Four cadet select a boatswain's call card from the container.
4. Have the remainder of the team members stand a distance away to avoid hearing the answers given (as illustrated in Figure 2).
5. Have the Phase Three or Phase Four cadet attempt to sound the pipe. They may be given three attempts to sound the pipe correctly. Once the pipe is sounded correctly, their partner is to attempt to identify the call, its use and where / when it is commonly used at the corps.
6. If the pipe is not sounded correctly after the three attempts, their partner may not identify the pipe and the partners will return to their team. No points will be awarded in this situation.
7. Each set of partners will follow Steps 3–5 until the time has lapsed.
8. Points are awarded as follows:
  - (a) five points for every pipe sounded correctly;
  - (b) one point (for a maximum of three) for every cadet who can correctly identify the pipe, explain its purpose and identify where / when used at the corps.

## SAFETY

Ensure the boatswain's calls are cleaned between uses.

---

## ACTIVITY THREE—KNOTS, HITCHES AND BENDS

Time: 30 min

---

## OBJECTIVE

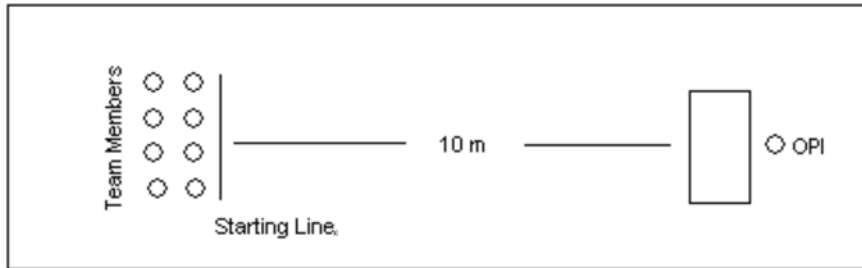
The objective of this activity is to have the cadets practice the knots, hitches and bends learned throughout the corps training.

## RESOURCES

- Line (1 m [3.5 feet] long),
- Small spar / dowel,
- Six foot table,
- Container,
- Task cards located at Attachment D,
- Whistle,
- Scoring sheet located at Attachment A, and
- Pen / pencil.

## ACTIVITY LAYOUT

- Place the station OPI's table approximately 10 m (33 feet) from the starting line (as illustrated in Figure 3).
- Place the container of task cards and the line on the table.



*Note. Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.*

Figure 3 Knots, Bends and Hitches Activity Layout

## ACTIVITY INSTRUCTIONS

1. One at a time, have each team member run to the station OPI's table and select a task card from the container.
2. Upon selecting a task card, have the cadet attempt to tie the selected knot with no assistance.



Complementary knots and hitches may be added to those listed at Attachment D.

3. Upon successful completion, have the cadet return to the starting line, tag the next cadet who will run to the station OPI's table and complete Steps 1–3 accordingly.
4. Have each cadet complete Steps 1–3 until the time has lapsed.
5. Award points as they appear on the task cards for each successful task completed.

## SAFETY

Ensure there are no obstacles in the area the cadets will be running.

---

## ACTIVITY FOUR—WHIPPING AND SPLICING

Time: 30 min

---

## OBJECTIVE

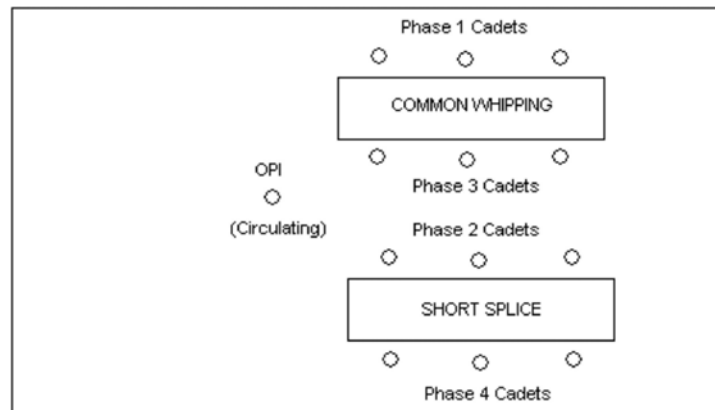
The objective of this activity is to practice whipping and splicing a line.

## RESOURCES

- Line (1 m [3.5 feet] per Phase One and Phase Two cadets),
- Three-strand line (1 m [3.5 feet] per Phase Three and Four cadets),
- Whipping twine (one spool),

- Cutting tool,
- Six foot table,
- Whistle,
- Scoring sheet located at Attachment A, and
- Pen / pencil.

## ACTIVITY LAYOUT



*Note. Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.*

Figure 4 Whipping and Splicing Activity Layout

## ACTIVITY INSTRUCTIONS

1. Divide the cadets into groups by phase. The first group will consist of Phase One and Phase Three cadets and the second group will consist of Phase Two and Phase Four cadets.
2. Have each Phase One cadet, with the verbal assistance of a Phase Three cadet, whip the end of a line.



The cadets may use a common whipping for this activity. If the corps choose to instruct C121.01 (Whip the End of a Line Using a West Country Whipping) or C121.02 (Whip the End of a Line Using a Sailmaker's Whipping) they may choose to use one of these methods to whip the end of a line for this activity.

3. Have each Phase Two cadet, with the verbal assistance of a Phase Four cadet, complete a short splice.
4. Award points as follows:
  - (a) two points for each successful whipping;
  - (b) two points for each successful short splice; and
  - (c) five points for each Phase Three and Phase Four cadet who displays positive reinforcement, topic knowledge, proper direction and motivation throughout their assistance to the Phase One and Phase Two cadets.

## SAFETY

Nil.

---

## ACTIVITY FIVE—TRIVIA

---

Time: 30 min

---

### OBJECTIVE

The objective of this activity is to reinforce theory knowledge and skills from the cadets' respective phase training through questions and tasks.

### RESOURCES

#### OPTION ONE:

- Six foot table,
- Chairs,
- Whistle,
- List of Suggested Trivia Questions located at Attachment B,
- Scoring sheet located at Attachment A, and
- Pen / pencil.

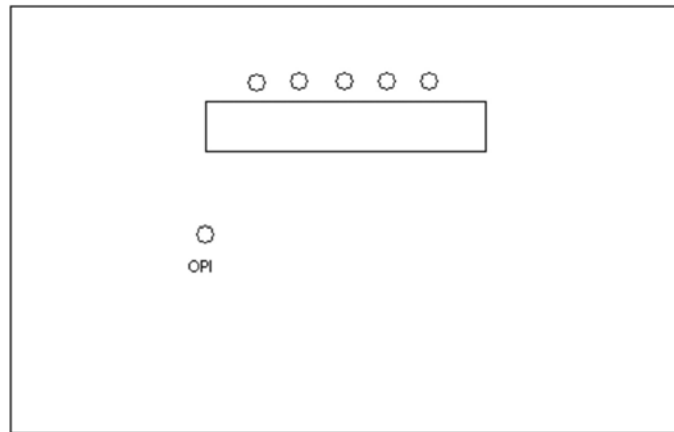
#### OPTION TWO:

- Six foot table,
- Chairs,
- Buzzer,
- Question board,
- List of Suggested Trivia Questions located at Attachment B,
- Whistle,
- Scoring sheet located at Attachment A, and
- Pen / pencil.

### ACTIVITY LAYOUT

For Option One set up the activity as a stand-alone station that teams will rotate into the same as each other activity. Set up chairs for one team (division), as illustrated in Figure 5.

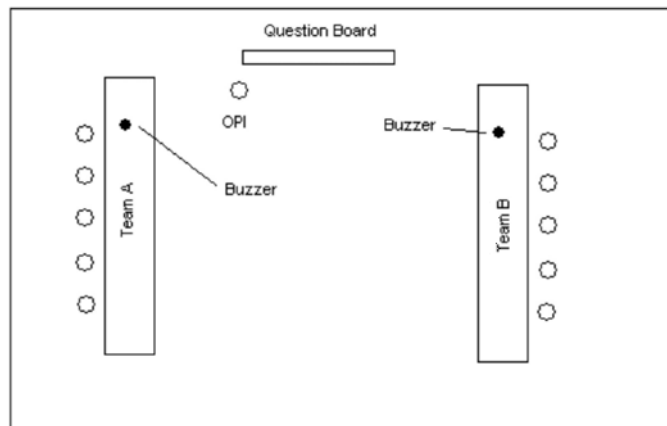




*Note. Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.*

Figure 5 Option One Trivia Activity Layout

For Option Two set up the activity as a head-to-head competition between all of the teams (divisions), as illustrated in Figure 6.



*Note. Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.*

Figure 6 Option Two Trivia Activity Layout

## ACTIVITY INSTRUCTIONS



Cadets shall not be asked trivia questions from beyond their own year of phase training (eg, Phase One cadets are only asked questions from Phase One but Phase Four cadets can be asked questions from Phase One, Two Three or Four).

### OPTION ONE:

1. Ask each cadet questions from the list on the Suggested Trivia Questions located at Attachment B.
2. Ask the questions to each cadet one at a time.

3. Give each team three lifelines to assist them in answering the questions:
  - (a) ask an officer;
  - (b) refer to their training materials; and
  - (c) team vote.
4. Award points as follows:
  - (a) one point will be awarded for every correct response given with the use of a lifeline;
  - (b) two points will be awarded for every unassisted correct response; and
  - (c) five points will be awarded for every bonus question answered correctly.



Lifelines may not be used for bonus questions.

**OPTION TWO:**

1. Hold a draw to determine where teams (divisions) will be placed in the round robin.
2. Have two teams play against each other to determine a winner.
3. Have the winning teams play off against each other to determine the final winner.
4. Give each team three lifelines to assist them in answering the questions:
  - (a) ask an officer;
  - (b) refer to their training materials; and
  - (c) team vote.
5. Pose a question and have the teams hit their buzzer to determine which team will get the chance to respond to the question.
6. Award points as follows:
  - (a) one point will be awarded for every correct response given with the use of a lifeline;
  - (b) two points will be awarded for every unassisted correct response; and
  - (c) five points will be awarded for every bonus question answered correctly

**SAFETY**

Nil.

---

**ACTIVITY SIX—SHEER LEGS**

Time: 60 min

---

**OBJECTIVE**

The objective of this activity is to have the cadets erect a set of sheers.

**RESOURCES**

## GENERAL:

- Hard hat (one per cadet),
- Two wooden spars each approximately 4.5 m (15 feet) long,
- Manila line 12 mm (0.5 inches) in diameter (9 m [30 feet] long),
- Five steel spikes with eyelets at the top (1 m [3.5 feet] long),
- Roll of whipping twine,
- Load of approximately 18 kg (40 pounds), and
- One steel spike with two eyelets (1 m [3.5 feet] long).

## TOPPING LIFT:

- Two single blocks,
- Manila line 16 mm (0.6 inches) in diameter (68 m [223 feet] long), and
- Strop.

## SPLAY TACKLE:

- One double block,
- One single block c/w becket,
- Manila Line 12 mm (0.5 inches) in diameter (17 m [56 feet] long).
- Two strops.

## HEEL TACKLES:

- Four double blocks,
- Four single blocks, and
- Four strops.

## LOAD PURCHASE:

- Two double blocks,
- One single block,
- Manila line 12 mm (0.5 inches) in diameter (approximately 30 m [100 feet] long), and
- Strop.

**ACTIVITY LAYOUT**

Nil.

## ACTIVITY INSTRUCTIONS

1. Have each team erect a set of sheers. A set of instructions complete with illustrations may be available for the cadets.
2. Have the cadets complete the tasks associated with their respective phase training (eg, Phase One cadets should complete the stops, Phase Two cadets should mouse the hooks, etc).
3. Points will be awarded IAW the Scoresheet located at Attachment A.

## SAFETY

- Ensure all cadets wear personal safety equipment at all times throughout this activity.
- Ensure all cadets stay clear of the load as it is raised and lowered.

---

## ACTIVITY SEVEN—MODEL SHIP

---

240 min (completed throughout the two days and judged at the end of day 2)

## OBJECTIVE

The objective of this activity is to have the teams (divisions) each complete a model ship highlighting specific ship characteristics.

## RESOURCES

- Black bristol board (one sheet per team),
- Grey bristol board (one sheet per team),
- Scissors (one pair per team),
- Tape (one roll per team),
- Paper clips (one small box per team),
- Large tub of water (to test buoyancy),
- Pictures of ships located at Attachment E,
- Scoresheet located at Attachment A,
- Markers (one package per team), and
- Glue (one per team).



Other resources may be used, if desired, to add creativity to the model ships. Sample resources may include:

- pipe cleaners,
- popsicle sticks, and
- toothpicks, etc.

## ACTIVITY LAYOUT

Nil.

## ACTIVITY INSTRUCTIONS

- Provide the teams (divisions) with time throughout the two day activity to work on building a model ship.
- Have the teams build a three-dimensional model of a ship, using only the resources provided them.
- The model ship can be any size and type using the given resources.
- Each model ship must contain the following characteristics:
  - bridge,
  - deck,
  - bow,
  - hull,
  - transom,
  - stern,
  - structure,
  - buoyancy, and
  - superstructure.
- Award points IAW the scoresheet located at Attachment A, based on the following:
  - ship type accuracy,
  - use of resources,
  - hull structure,
  - hull design,
  - presentation,
  - buoyancy, and
  - overall appearance.



Teams may add other characteristics to their model ship if they wish. Some additional characteristics may include:

- anchor,
- rudder,
- propellers, and
- port holes, etc.

## SAFETY

Nil.

---

**ACTIVITY EIGHT—TEAM-BUILDING (ONGOING THROUGHOUT THE TWO DAYS)**

---

## **ACTIVITY EIGHT (A) – MOST LIKE ME**

Time: 10 min

### **OBJECTIVE**

The objective of this activity is to have the cadets participate in an icebreaker team-building activity for team members to get to know each other better.

### **RESOURCES**

- Most Like Me activity sheet (one per cadet) located at Attachment F, and
- Pen / pencil (one per cadet).

### **ACTIVITY LAYOUT**

Nil.

### **ACTIVITY INSTRUCTIONS**

1. Distribute the Most Like Me activity sheet to each cadet.
2. Have the cadets look at the pictures on the activity sheet and place an 'X' in the corner of the pictures that are most like them.
3. Allow the cadets approximately five minutes to complete the activity sheet.
4. Have the cadets come together and share which pictures are most like them with the rest of the cadets.

### **SAFETY**

Nil.

## **ACTIVITY EIGHT (B) – ACROSS THE RIVER**

Time: 30 min

### **OBJECTIVE**

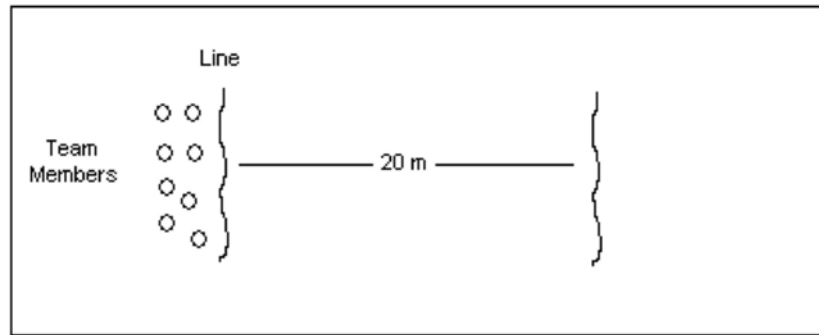
The objective of this activity is to provide the teams the opportunity to solve problems while participating in physical activities.

### **RESOURCES**

Two pieces of line (4 m [14 feet] long).

### **ACTIVITY LAYOUT**

Lay each piece of line across an open space approximately 20 m apart (as illustrated in Figure 7).



*Note. Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.*

Figure 7 Across the River Activity Layout

### ACTIVITY INSTRUCTIONS

1. Have the team (division) stand behind one of the lines. This will become the starting point.
2. Explain that the team is to go from one line to the other by only placing a designated number of feet on the ground at one given time (eg, if there are 10 cadets, perhaps only 14 feet may be on the ground at a given time).
3. Explain that the team is to return by only placing a lesser number of designated feet on the ground at one time (eg, the cadets then have to return by placing only 11 feet on the ground at a given time).

### SAFETY

Ensure there are no hazards in the area where the activity will be conducted.

### ACTIVITY EIGHT (C) – SHERPA WALK

Time: 30 min

### OBJECTIVE

The objective of this activity is to have the team, while holding hands, walk through a path while blindfolded.

### RESOURCES

Blindfold (one per cadet).

### ACTIVITY LAYOUT

Nil.

### ACTIVITY INSTRUCTIONS

1. Have two cadets volunteer to act as guides.
2. Take the two guides down the path to show them the way. These cadets will become the leaders and guide the remainder of the team through the path.
3. Inform the guides that they will not be permitted to touch or speak to the cadets. The guides are permitted to use sound signals (eg, clap, whistle, snap, etc) as signals to the team.
4. Have the remainder of the cadets arrange themselves in a line and put on their blindfolds.

5. Have one guide at the front of the line and one guide at the rear.
6. Have the guides lead their team through the path using the sound signals.

### **SAFETY**

- Teams must hold hands throughout the activity.
- Ensure the path is free of any major obstacles.

---

## **ACTIVITY NINE—FINAL EVENT**

Time: 90 min

---

### **OBJECTIVE**

The objective of this activity is to review all aspects of the seamanship competition.

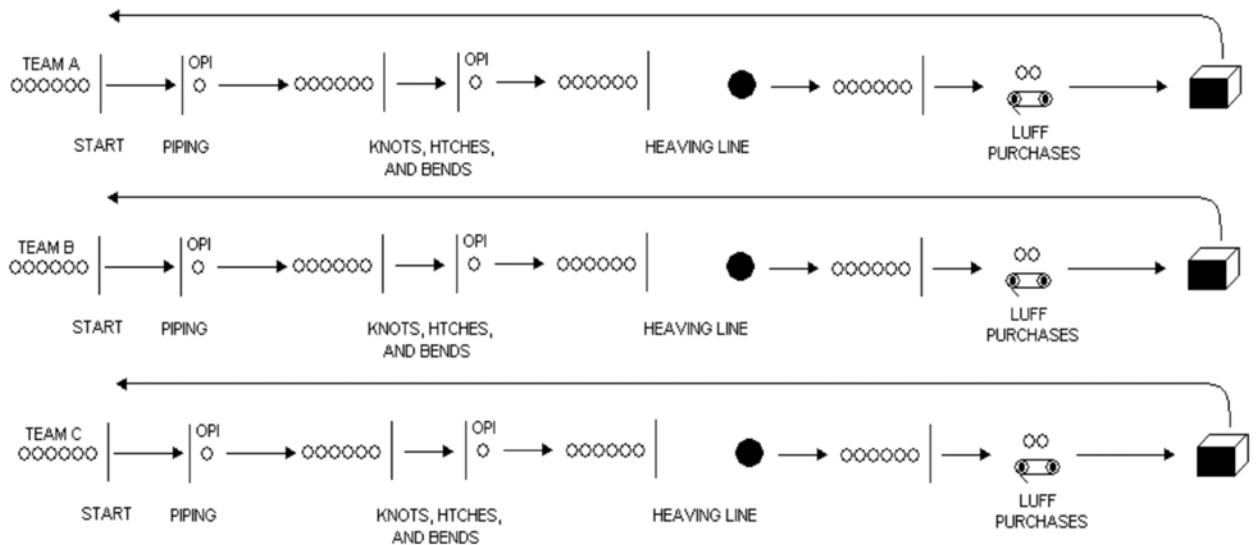
### **RESOURCES**

- Whistle,
- Boatswain's call (one per division),
- Line (1 m [3.5 feet] per division),
- Task cards located at Attachment D (one set per division),
- Heaving line (one per division),
- Single blocks (per division),
- Double blocks (per division),
- Manila line 12 mm (0.5 inches) in diameter (one 17 m [56 feet] length per division),
- Small box (one per division),
- Target (one per division), and
- Secret message cards located at Attachment G (one set per division).

### **ACTIVITY LAYOUT**

- Set up the activity (as illustrated in Figure 8) if enough resources are available for each team (division) to compete at one time against each other.
- If enough resources are not available for each team (division) to compete at one time, one relay should be set up and each team (division) will compete and be timed.
- Set up four stations as follows:
  - Station 1—Pipes;
  - Station 2—Knots, Hitches and Bends;
  - Station 3—Heaving Line; and
  - Station 4—Luff Purchases.





*Note. Created by Director Cadets 3, 2006, Ottawa, ON: Department of National Defence.*

Figure 8 Final Event Layout

### ACTIVITY INSTRUCTIONS

1. Explain the following rules to the cadets:
  - (a) each team (division) is to lineup behind the starting point;
  - (b) each team is to travel as a group (eg, no member can travel to the next station until the previous one has been completed, then the team shall travel together to the next station);
  - (c) on the start signal the teams will travel through each station in sequence (as illustrated in Figure 8); and
  - (d) upon completion of each station, the team will be given a secret message card which will be used to decipher a secret message upon completion of the activity.
2. Explain Station 1 to the cadets, to include:
  - (a) one cadet being given the name of a pipe and having to sound that pipe;
  - (b) if the cadet is able to correctly sound the pipe, the team will be given one secret message card and will advance as a team to the next station;
  - (c) if the cadet is unable to correctly sound the pipe, the next cadet should attempt to sound the pipe (this should continue through all of the cadets until the pipe is sounded successfully) and the team will advance to the next station; and
  - (d) if no cadets on the team are able to successfully sound the pipe, they must wait 15 seconds after the last team has moved to the next station before they may advance to the next station.
3. Explain Station 2 to the cadets, to include:
  - (a) one cadet from the team (division) at a time will approach the station OPI and select a task card;
  - (b) the cadet must explain the purpose of the knot, hitch or bend and tie the knot for the OPI;

- (c) this process shall continue until three cadets have successfully completed this for the team; and
  - (d) when the team is successful three times, they will be given a secret message card for each successful attempt (for a maximum of three) and advance as a team to the next station.
4. Explain Station 3 to the cadets, to include:
- (a) one cadet at a time advancing to the starting point, retrieving the heaving line, coiling it and tossing it at the target;
  - (b) each successive cadet repeating the process of advancing to the starting point, retrieving the heaving line, coiling it and tossing it at the target until the target has been successfully hit three times; and
  - (c) when the team has been successful three times, they will be given a secret message card for each successful attempt (for a maximum of three) and advance as a team to the next station.
5. Explain Station 4 to the cadets, to include:
- (a) selecting two members of the team (division) to attempt to properly reeve the lines of a luff;
  - (b) if the initial members are unsuccessful, they must return and two new members will attempt to properly reeve the purchase;
  - (c) this will continue until the team is successful;
  - (d) when the team is successful, they will be given two secret message cards and advance as a team to the finishing point;
  - (e) upon arriving at the finishing point, the cadets must attempt to decipher the secret message.
6. Have the cadets participate in the activity.
7. Points will be awarded IAW the Scoresheet located at Attachment A.

**SAFETY**

Ensure the area is clear from any major obstacles.

---

**END OF LESSON CONFIRMATION**

---

The cadets' participation in the Seamanship Interdivisional Competition will serve as the confirmation of this lesson.

---

**CONCLUSION**

---

**HOMEWORK / READING / PRACTICE**

Nil.

**METHOD OF EVALUATION**

Nil.

**CLOSING STATEMENT**

It is important to participate in this competition as it will reinforce many areas of skills and knowledge learned throughout the corps training. It will allow an opportunity for the instructors to evaluate your knowledge and

skills. It will provide a further opportunity for team-building for all members of the corps as it reinforces the divisional system and ensures all divisions and corps members work together and interact to meet a common goal.

**INSTRUCTOR NOTES / REMARKS**

Nil.

---

**REFERENCES**

---

C1-002 ISBN 0-7858-1446-9 Pawson, D. (2001). *Pocket guide to knots and splices*. Edison, NJ: Charwell Books, Inc.

C1-003 ISBN 11-770973-5 Royal Navy. (1972). *Admiralty manual of seamanship 1964* (Vol.1). London, England: Her Majesty's Stationery Office.

C1-005 ISBN 0-07-134984-7 West, E. (1999). *The big book of icebreakers: Quick, fun activities for energizing meetings and workshops*. New York, NY: McGraw-Hill, Inc.

C1-006 ISBN 0-8403-5682-X Rohnke, K. (1984). *Silver bullets: A guide to initiative problems, adventure games and trust activities*. Iowa: Kendall/Hunt Publishing Company.

THIS PAGE INTENTIONALLY LEFT BLANK

**SCORESHEETS**

---

**COIL AND HEAVE A LINE**

---

**TEAM NAME:**

**AWARDING POINTS**

Teams will be awarded one point for every successful line tossed into the designated target.

**POINTS AWARDED**

**OVERALL TOTAL:**

**OPI NAME:**

**DATE:**

**BOATSWAIN CALL**

**TEAM NAME :**

**AWARDING POINTS**

Teams will be awarded five points for every correctly sounded pipe. For identifying the pipe, explaining the pipes purpose and identifying common areas the pipe is used at the corps, the team will be awarded one point for each.

<b>POINTS AWARDED</b>		
Pipe Sounded Correctly	Correct - 5 pts	Incorrect - 0 pt
Pipe Identified Correctly	Correct - 1 pt	Incorrect - 0 pt
Purpose Explained	Correct - 1 pt	Incorrect - 0 pt
Common Areas Identified	Correct - 1 pt	Incorrect - 0 pt
		<b>SUBTOTAL:</b>
Pipe Sounded Correctly	Correct - 5 pts	Incorrect - 0 pt
Pipe Identified Correctly	Correct - 1 pt	Incorrect - 0 pt
Purpose Explained	Correct - 1 pt	Incorrect - 0 pt
Common Areas Identified	Correct - 1 pt	Incorrect - 0 pt
		<b>SUBTOTAL:</b>
Pipe Sounded Correctly	Correct - 5 pts	Incorrect - 0 pt
Pipe Identified Correctly	Correct - 1 pt	Incorrect - 0 pt
Purpose Explained	Correct - 1 pt	Incorrect - 0 pt
Common Areas Identified	Correct - 1 pt	Incorrect - 0 pt
		<b>SUBTOTAL:</b>
Pipe Sounded Correctly	Correct - 5 pts	Incorrect - 0 pt
Pipe Identified Correctly	Correct - 1 pt	Incorrect - 0 pt
Purpose Explained	Correct - 1 pt	Incorrect - 0 pt
Common Areas Identified	Correct - 1 pt	Incorrect - 0 pt
		<b>SUBTOTAL:</b>
Pipes Sounded Correctly	Correct - 5 pts	Incorrect - 0 pt
Pipe Identified Correctly	Correct - 1 pt	Incorrect - 0 pt
Purpose Explained	Correct - 1 pt	Incorrect - 0 pt
Common Areas Identified	Correct - 1 pt	Incorrect - 0 pt
		<b>SUBTOTAL:</b>
		<b>OVERALL TOTAL:</b>

**OPI NAME:**

**DATE:**

**KNOTS, HITCHES AND BENDS**

**TEAM NAME :**

**AWARDING POINTS**

Teams will be awarded points for every task completed correctly. Point value will be IAW the points indicated on the task cards.

<b>POINTS AWARDED</b>					
<b>TIE KNOTS</b>					
5 pts	5 pts	5 pts	5 pts	5 pts	5 pts
5 pts	5 pts	5 pts	5 pts	5 pts	5 pts
					<b>SUBTOTAL:</b>
<b>WHO AM I?</b>					
3 pts	3 pts	3 pts	3 pts	3 pts	3 pts
3 pts	3 pts	3 pts	3 pts	3 pts	3 pts
					<b>SUBTOTAL:</b>
<b>DEFINITION</b>					
2 pts	2 pts	2 pts	2 pts	2 pts	2 pts
2 pts	2 pts	2 pts	2 pts	2 pts	2 pts
					<b>SUBTOTAL:</b>
<b>VISUAL IDENTIFICATION</b>					
1 pt	1 pt	1 pt	1 pt	1 pt	1 pt
1 pt	1 pt	1 pt	1 pt	1 pt	1 pt
					<b>SUBTOTAL:</b>
<b>OVERALL TOTAL:</b>					

**OPI NAME:**

**DATE:**

**WHIPPING AND SPLICING**

**TEAM NAME :**

**AWARDING POINTS**

Teams will be awarded two points for every correct short splice and whipping. The OPI will also assess the phase three and four cadets' ability to provide guidance and assistance. The OPI will look for things such as positive reinforcement, topic knowledge, proper direction and motivation.

<b>POINTS AWARDED</b>					
<b>WHIPPINGS COMPLETED</b>					
2 pts	2 pts	2 pts	2 pts	2 pts	2 pts
2 pts	2 pts	2 pts	2 pts	2 pts	2 pts
					<b>SUBTOTAL:</b>
<b>SPLICES COMPLETED</b>					
2 pts	2 pts	2 pts	2 pts	2 pts	2 pts
2 pts	2 pts	2 pts	2 pts	2 pts	2 pts
					<b>SUBTOTAL:</b>
<b>LEADERSHIP</b>					
1 pt	2 pts	3 pts	4 pts	5 pts	
6 pts	7 pts	8 pts	9 pts	10 pts	
					<b>SUBTOTAL:</b>
<b>OVERALL TOTAL:</b>					

**OPI NAME:**

**DATE:**



---

**TRIVIA (OPTION ONE)**

---

**TEAM NAME :**

**AWARDING POINTS**

Teams will be awarded points for every task completed correctly. Point value will be IAW the points indicated on the task cards.

<b>POINTS AWARDED</b>		
Question # 1:	Correct 2 pts	Incorrect 0 pt
Question # 2:	Correct 2 pts	Incorrect 0 pt
Question # 3:	Correct 2 pts	Incorrect 0 pt
Question # 4:	Correct 2 pts	Incorrect 0 pt
Question # 5:	Correct 2 pts	Incorrect 0 pt
Question # 6:	Correct 2 pts	Incorrect 0 pt
Question # 7:	Correct 2 pts	Incorrect 0 pt
Question # 8:	Correct 2 pts	Incorrect 0 pt
Question # 9:	Correct 2 pts	Incorrect 0 pt
Question # 10:	Correct 2 pts	Incorrect 0 pt
Question # 11:	Correct 2 pts	Incorrect 0 pt
Question # 12:	Correct 2 pts	Incorrect 0 pt
Question # 13:	Correct 2 pts	Incorrect 0 pt
Question # 14:	Correct 2 pts	Incorrect 0 pt
Question # 15:	Correct 2 pts	Incorrect 0 pt
BONUS QUESTION:	Correct 5 pts	Incorrect 0 pt
<b>LIFEFLINES:</b>		
ASK AN OFFICER:	- 1 pt	
REFERENCE MANUALS:	- 1 pt	
TEAM VOTE:	- 1 pt	
		<b>OVERALL TOTAL:</b>

**OPI NAME:**

**DATE:**

---

**TRIVIA (OPTION TWO)**

---

**TEAM NAME :**

**AWARDING POINTS**

Teams will be awarded one point for every correct response given with the use of a lifeline, two points for every unassisted correct response and five points for every bonus question answered correctly.

**POINTS AWARDED**

Question # 1:	Point Value Awarded: _____
Question # 2:	Point Value Awarded: _____
Question # 3:	Point Value Awarded: _____
Question # 4:	Point Value Awarded: _____
Question # 5:	Point Value Awarded: _____
Question # 6:	Point Value Awarded: _____
Question # 7:	Point Value Awarded: _____
Question # 8:	Point Value Awarded: _____
Question # 9:	Point Value Awarded: _____
Question # 10:	Point Value Awarded: _____
Question # 11:	Point Value Awarded: _____
Question # 12:	Point Value Awarded: _____
Question # 13:	Point Value Awarded: _____
Question # 14:	Point Value Awarded: _____
Question # 15:	Point Value Awarded: _____

**OVERALL TOTAL:**

**OPI NAME:**

**DATE:**

**SHEERS**

**TEAM NAME :**

**AWARDING POINTS**

Teams will be awarded points IAW the scoring guide.

<b>POINTS AWARDED</b>					
HEAD LASHING—proper, tight, neat and secure.					
Clove Hitch	3 pts	2 pts	1 pt		
Correct Number of Turns	1 pt				
Tight and Secure	2 pts	1 pt			
					SUBTOTAL:
TOPPING LIFT—Double Whip					
Lines Rove	3 pts	2 pts	1 pt		
Hooks Moused	3 pts	2 pts	1 pt		
Strops	1 pt				
					SUBTOTAL:
SPLAY TACKLE—Luff					
Lines Rove	3 pts	2 pts	1 pt		
Hooks Moused	3 pts	2 pts	1 pt		
Strops	1 pt				
					SUBTOTAL:
HEEL TACKLES—Luff (four)					
Lines Rove	5 pts	4 pts	3 pts	2 pts	1 pt
Hooks Moused	5 pts	4 pts	3 pts	2 pts	1 pt
Strops	3 pts	2 pts	1 pt		
					SUBTOTAL:
LOAD PURCHASE—Double Block					
Lines Rove	5 pts	4 pts	3 pts	2 pts	1 pt
Hooks Moused	5 pts	4 pts	3 pts	2 pts	1 pt
Strops	3 pts	2 pts	1 pt		
					SUBTOTAL:
OVERALL APPEARANCE					
	5 pts	4 pts	3 pts	2 pts	1 pt
					SUBTOTAL:
<b>OVERALL TOTAL:</b>					

**OPI NAME:**

**DATE:**

---

**MODEL SHIP**

---

**TEAM NAME :**

**AWARDING POINTS**

Teams will be awarded points IAW the following scoring guide.

<b>POINTS AWARDED</b>					
SHIP TYPE ACCURACY—the ship's model is similar to that of the type chosen by the team.					
1 pt	2 pts	3 pts	4 pts	5 pts	
USE OF RESOURCES—the team maximized the use of resources provided.					
1 pt	2 pts	3 pts	4 pts	5 pts	
HULL STRUCTURE—the hull structure highlights the areas of the hull, bow, stern and transom.					
1 pt	2 pts	3 pts	4 pts	5 pts	
HULL DESIGN—the hull design highlights the areas of the bridge, deck and superstructure.					
1 pt	2 pts	3 pts	4 pts	5 pts	
PRESENTATION—the team presentation was clear, confident and involved maximum group participation.					
1 pt	2 pts	3 pts	4 pts	5 pts	
BUOYANCY—the model floats even and steady.					
1 pt	2 pts	3 pts	4 pts	5 pts	
OVERALL APPEARANCE—the model has many details.					
1 pt	2 pts	3 pts	4 pts	5 pts	
<b>OVERALL TOTAL:</b>					

**OPI NAME:**

**DATE:**

---

**FINAL EVENT**

---

**TEAM NAME :**

**AWARDING POINTS**

Teams will be awarded points IAW their finishing position.

<b>POINTS AWARDED</b>		
FIRST PLACE TEAM NAME:	Points	50
SECOND PLACE TEAM NAME:	Points	40
THIRD PLACE TEAM NAME:	Points	30
FOURTH PLACE TEAM NAME:	Points	20
FIFTH PLACE TEAM NAME:	Points	10
<b>OVERALL TOTAL:</b>		

**OPI NAME:**

**DATE:**

THIS PAGE INTENTIONALLY LEFT BLANK

## SUGGESTED TRIVIA QUESTIONS

### Phase One

Q1. What is the purpose of one of the following knots hitches or bends:

- Reef Knot,
- Figure Eight Knot,
- Sheet Bend,
- Bowline,
- Clove Hitch, or
- Round Turn Two Half Hitches.

A1. The following answers apply:

- Reef Knot: to tie together two ropes of equal diameter.
- Figure Eight Knot: stopper knot.
- Sheet Bend: to tie together two ropes of unequal diameter.
- Bowline: to create a temporary eye in the end of a line.
- Clove Hitch: to secure a line to a spar.
- Round Turn Two Half Hitches: to secure a line to a ring or eye.
- Common Whipping: to finish the end of a line to prevent it from fraying or unravelling.

Q2. Define one of the following naval terms:

- Gash can,
- Stand easy,
- Secure,
- Heads,
- Duty watch,
- Out pipes,
- Scran locker,
- Pipe,
- Colours,
- Liberty boat,
- Bulkhead,
- Deck,
- Ship's company,
- Sunset,
- Gangway,
- Galley,
- Boatswain's stores,
- Pipe down,
- Kye,
- Aye Aye, Sir / Ma'am,
- Port,
- Starboard,
- Ship's Office,
- Gangway, and
- Brow.



A2. Answers:

- Gash can: garbage can.
- Stand easy: a break.
- Secure: to close up and put away gear.
- Heads: toilet(s).
- Duty watch: a division that is selected on a rotational basis that is responsible for corps preparation and cleanup.
- Out pipes: a pipe indicating the commencement of classes or the end of stand easy.
- Scran locker: lost and found.
- Pipe: sound produced from a boatswain's call. The notes played have a specific meaning / message.
- Colours: the ceremony of hoisting the national flag, usually in the morning or at the beginning of the training day.
- Liberty boat: when all personnel are dismissed for the day and may go ashore;
- Bulkhead: a wall.
- Deck: a floor.
- Ship's company: the complement of a ship (this would include a sea cadet corps).
- Sunset: the ceremony of lowering the national flag at the end of a training day.
- Gangway: any recognized entrance to, passageway or traffic route within a ship.
- Galley: the ship's kitchen.
- Boatswain's stores: a storeroom for cleaning gear.
- Pipe down: an order meaning to keep quiet.
- Kye: a hot chocolate drink.
- Aye Aye, Sir / Ma'am: order understood that will be obeyed, an appropriate response to an order from an officer.
- Port: left side of a ship.
- Starboard: right side of a ship.
- Ship's Office: administration office.
- Brow: entrance / exit of a ship where personnel must salute when coming aboard or going ashore.

Q3. What pipe is used to gain the attention of a ship's company before passing an order?

A3. General Call.

Q4. What pipe is used to bring the ship's company to attention?

A4. The Still.

Q5. What pipe is sounded after the reason for the still is complete?

A5. Carry On.

Q6. How many times do you ring a ship's bell for Colours / Sunset?

A6. The bell is rung as follows:

- Colours: eight times, and
- Sunset: four times.

## Phase Two

- Q1. What are the three steps involved in bringing a naval vessel into service?
- A1. The three steps involved in bringing a naval vessel into service are:
- keel laying;
  - naming and launching; and
  - commissioning.
- Q2. What is the draught of a ship?
- A2. The depth of the keel below the waterline at any point along the hull.
- Q3. Identify the following splice (present the cadets with a pre-tied short splice).
- A3. Short Splice.
- Q4. What type of blocks does a luff consist of?
- A4. One double block and one single block.
- Q5. What tackle consists of two double blocks?
- A5. Two-fold purchase.
- Q6. What should you do to prevent a load from falling off a hook?
- A6. Mouse the hook.
- Q7. What part of the sailboat is used to hoist the sails?
- A7. Halyards.
- Q8. What helps prevent a sailboat from capsizing?
- A8. Centreboard / Daggerboard.
- Q9. What are sheets used for?
- A9. To control the mainsail and jib sail.
- Q10. What are some ways to determine wind direction?
- A10. Flags, tall grass, smoke, small waves, wind sock, moored boats and low altitude clouds.
- Q11. What times are associated with the first dog watch?
- A11. 1600–1800 hours.
- Q12. What times are associated with the forenoon watch?
- A12. 0800-1200 hours.
- Q13. What is the purpose of the dog watches?
- A13. The dog watches are only half the time of the others to create a seventh watch, ensuring that personnel do not stand the same watch every day.

**Phase 3**

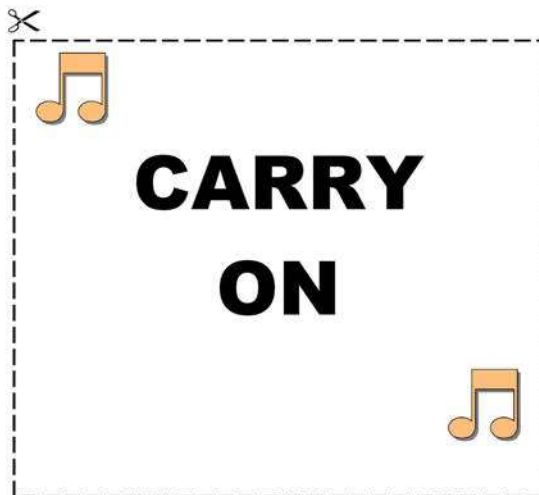
- Q1. What ship is currently operating in \_\_\_\_\_ (the OPI should select a current deployment)?
- A1. Depends on current deployments.
- Q2. What are three safety precautions to consider when using lifting devices?
- A2. Wear a helmet, do not enter the safety zone and do not walk under the load.
- Q3. What is the purpose of a splay tackle?
- A3. To prevent the legs of a sheer from separating.
- Q4. How many turns should a head lashing consist of?
- A4. Eleven to fifteen.
- Q5. What part attaches to the load on sheers?
- A5. Main purchases.
- Q6. The bottom of a sail is known as what?
- A6. Foot.
- Q7. What part of the sailboat houses the centreboard?
- A7. Centreboard trunk.
- Q8. What should the crew of a sailboat do to help prevent heeling?
- A8. Hike.
- Q9. What does PFD stand for?
- A9. Personal floatation device.

**Phase Four**

- Q1. Name one civilian maritime organization.
- A1. Department of Fisheries and Oceans, Canadian Coast Guard, etc.
- Q2. What is turning a sailboat so its bow passes through head to wind known as?
- A2. Tacking.
- Q3. The side the boat that the wind passes over first is known as what?
- A3. Windward side.

THIS PAGE INTENTIONALLY LEFT BLANK

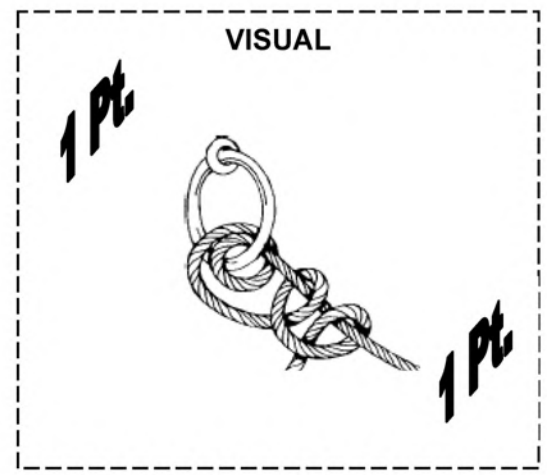
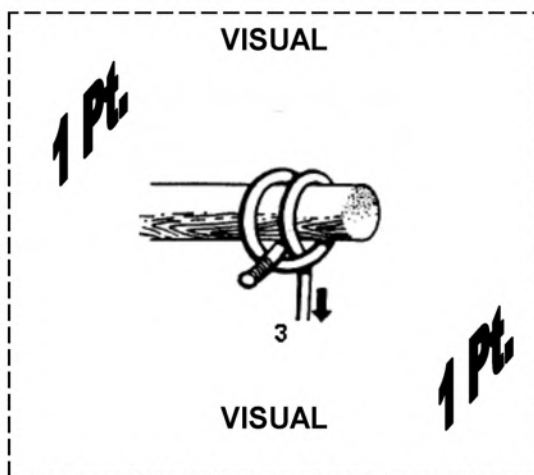
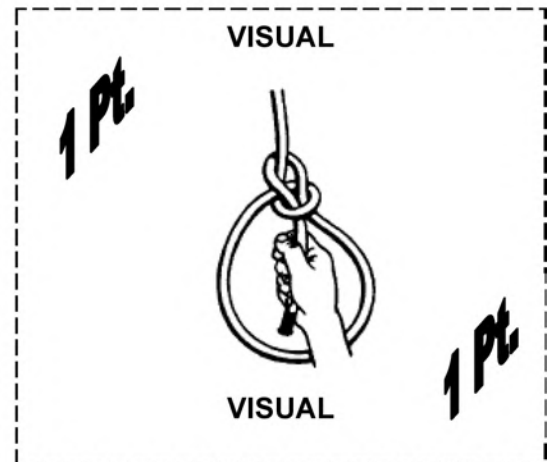
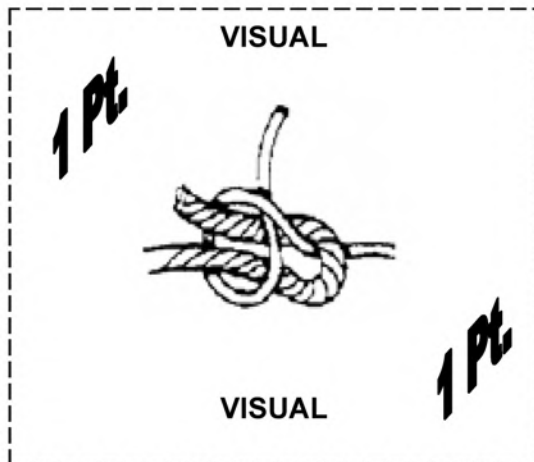
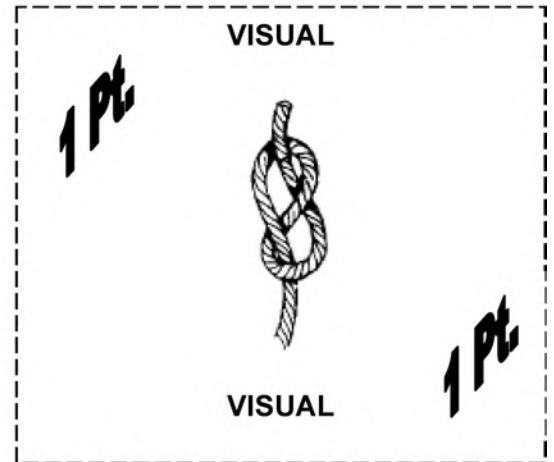
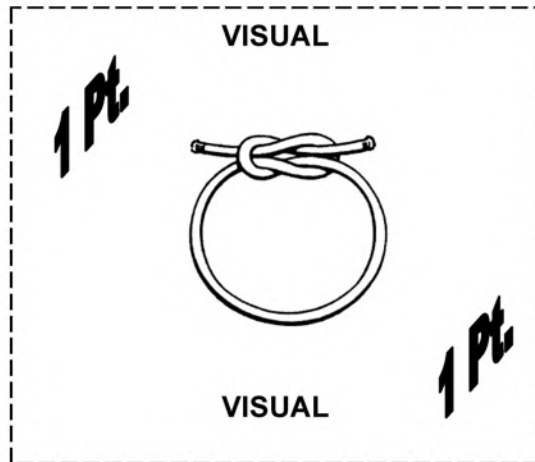
**BOATSWAIN'S CALL CARDS**



THIS PAGE INTENTIONALLY LEFT BLANK



TASK CARDS





TIE KNOTS

*5 PTS.*

**BOWLINE**

TIE KNOTS *5 PTS.*

TIE KNOTS

*5 PTS.*

**FIGURE 8**

TIE KNOTS *5 PTS.*

TIE KNOTS

*5 PTS.*

**SHEET  
BEND**

TIE KNOTS *5 PTS.*

TIE KNOTS

*5 PTS.*

**REEF  
KNOT**

TIE KNOTS *5 PTS.*

TIE KNOTS

*5 PTS.*

**GLOVE  
HITCH**

TIE KNOTS *5 PTS.*

TIE KNOTS

*5 PTS.*

**ROUND TURN  
2 HALF HITCHES**

TIE KNOTS *5 PTS.*



WHO AM I?  
**3 PTS**  
Stop the line from  
running all the  
way out the  
fairleads  
WHO AM I? **3 PTS**

WHO AM I?  
**3 PTS**  
Start tying me by  
making a six  
somewhere in  
the line  
WHO AM I? **3 PTS**

WHO AM I?  
**3 PTS**  
You can use me to  
temporarily tie  
up a small boat  
WHO AM I? **3 PTS**

WHO AM I?  
**3 PTS**  
Lines different  
diameters?  
I think I can  
help.  
WHO AM I? **3 PTS**

WHO AM I?  
**3 PTS**  
I am often used as  
the start when  
tying your  
shoes  
WHO AM I? **3 PTS**

WHO AM I?  
**3 PTS**  
My hitches should  
always be made with  
the running end going  
in the same direction.  
WHO AM I? **3 PTS**



DEFINITION

**2 PTS.**

**REEF KNOT**

DEFINITION **2 PTS.**

DEFINITION

**2 PTS.**

**SHEET BEND**

DEFINITION **2 PTS.**

DEFINITION

**2 PTS.**

**BOWLINE**

DEFINITION **2 PTS.**

DEFINITION

**2 PTS.**

**FIGURE 8**

DEFINITION **2 PTS.**

DEFINITION

**2 PTS.**

**CLOVE HITCH**

DEFINITION **2 PTS.**

DEFINITION

**2 PTS.**

**ROUND TURN  
2 HALF HITCHES**

DEFINITION **2 PTS.**

## TYPES OF SHIPS



*Note. From Department of National Defence, 2006. Retrieved March 11, 2006, from [http://www.navy.forces.gc.ca/cms\\_images/ship\\_site\\_images/ship\\_gallery/283/ETD02-0081-30\\_l.jpg](http://www.navy.forces.gc.ca/cms_images/ship_site_images/ship_gallery/283/ETD02-0081-30_l.jpg)*

Figure 1 HMCS Algonquin



*Note. From Department of National Defence, 2006. Retrieved on March 11, 2006, from [http://www.navy.forces.gc.ca/cms\\_images/ship\\_site\\_images/ship\\_gallery/710/cx2003-0152-22c.jpg](http://www.navy.forces.gc.ca/cms_images/ship_site_images/ship_gallery/710/cx2003-0152-22c.jpg)*

Figure E-2 HMCS Brandon



*Note. From Department of National Defence, 2006. Retrieved on March 11, 2006, from [http://www.navy.forces.gc.ca/cms\\_images/ship\\_site\\_images/ship\\_gallery/334/Sailpast.jpg](http://www.navy.forces.gc.ca/cms_images/ship_site_images/ship_gallery/334/Sailpast.jpg)*

Figure E-3 HMCS Regina



*Note. From Department of National Defence, 2006. Retrieved on March 11, 2006, from [http://www.navy.forces.gc.ca/cms\\_images/ship\\_site\\_images/ship\\_gallery/509/prot11.jpg](http://www.navy.forces.gc.ca/cms_images/ship_site_images/ship_gallery/509/prot11.jpg)*

Figure E-4 HMCS Protecteur



*Note. From JCOMMOPS, 2001-2008 Retrieved on March 11, 2006, from [http://www.jcommops.org/graph\\_ref/cargo\\_ship-3.jpg](http://www.jcommops.org/graph_ref/cargo_ship-3.jpg)*

Figure E-5 Cargo Vessel



*Note. From CBS News. Retrieved on March 11, 2006, from <http://www.cbsnews.com/images/2006/03/24/imageSJU10103232114.jpg>*

Figure E-6 Cruise Ship



*Note. From Newfoundland Photo Gallery. Retrieved on March 11, 2006, from <http://www.geocities.com/Heartland/Pointe/5181/nfld/smallwood.jpg>*

Figure E-7 Car Ferry



*Note. From CMT Consulting Management Technology Retrieved on March 11, 2006, from <http://www.cmt-gmbh.de/tanker%20ship.jpg>*

Figure E-8 Tanker



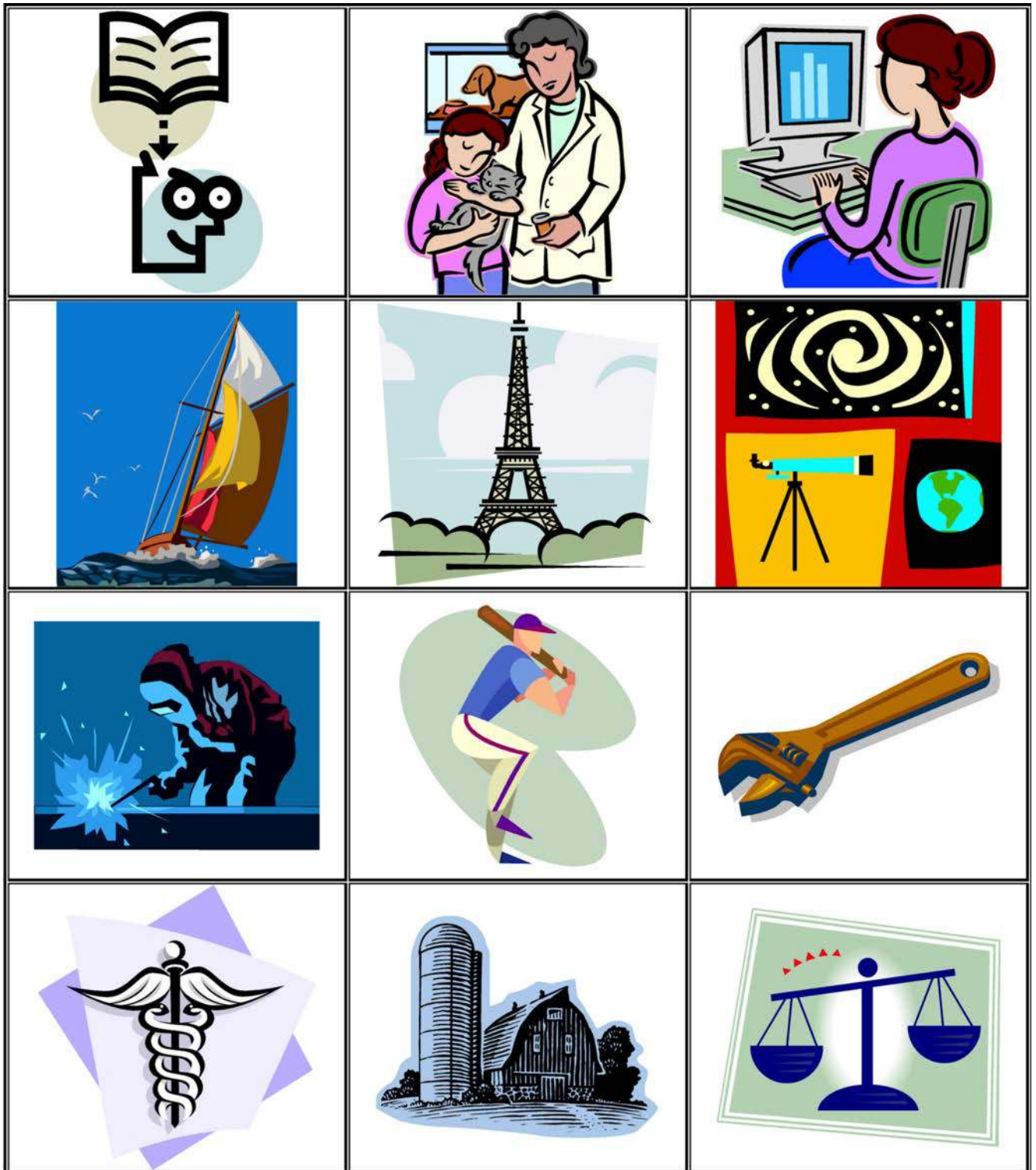


*Note. Retrieved on March 11, 2006, from <http://ei4hq.shacknet.nu/corkHarbour/tugs/original/Gerry%20O'Sullivan%201.jpg>*

Figure E-9 Tug Handling Supply Vessel

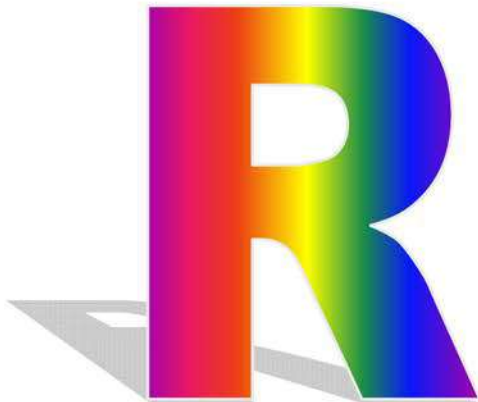
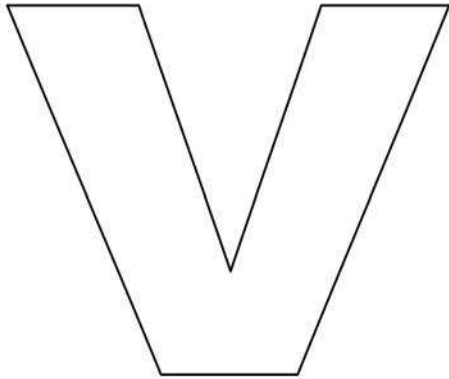
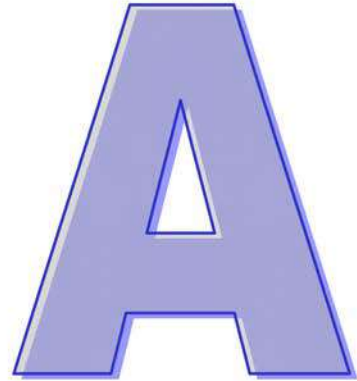
THIS PAGE INTENTIONALLY LEFT BLANK

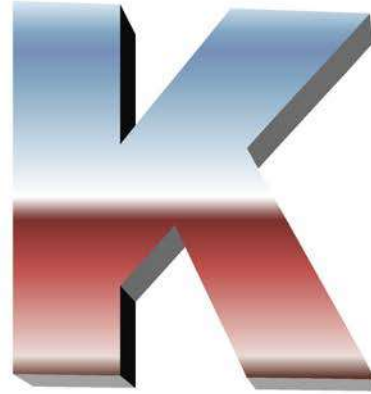
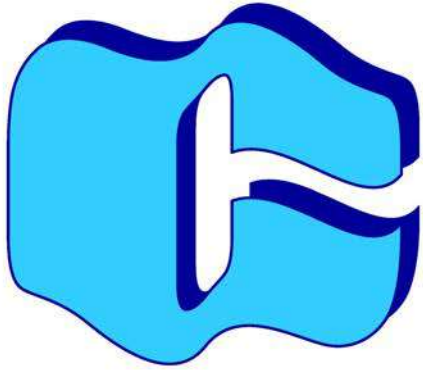
**MOST LIKE ME ACTIVITY SHEET**



THIS PAGE INTENTIONALLY LEFT BLANK

**SECRET MESSAGE CARD**





**Secret Message—"NAVY ROCKS"**

**CHAPTER 16**

**PO X24 – SAIL A SAILBOAT IN ACCORDANCE WITH SAIL CANADA CANSAIL LEVEL 1**







**ROYAL CANADIAN SEA CADETS**

**ALL TRAINING LEVELS**

**INSTRUCTIONAL GUIDE**

**SAIL**



**PO X24 – SAIL A SAILBOAT IN ACCORDANCE WITH SAIL CANADA CANSAIL LEVEL 1**

---

Total Time:

One weekend

---

THERE IS NO INSTRUCTIONAL GUIDE PROVIDED FOR THIS EO. REFER TO THE LESSON SPECIFICATION LOCATED IN A-CR-CCP-601/PG-001, *ROYAL CANADIAN SEA CADETS PHASE ONE QUALIFICATION STANDARD AND PLAN*.

THIS PAGE INTENTIONALLY LEFT BLANK

**CHAPTER 17**

**PO X25 – PARTICIPATE IN A NAUTICAL TRAINING WEEKEND**





**ROYAL CANADIAN SEA CADETS**

**ALL TRAINING LEVELS**

**INSTRUCTIONAL GUIDE**

**NAUTICAL TRAINING**



**PO X25 – PARTICIPATE IN A NAUTICAL TRAINING WEEKEND**

---

Total Time:

One weekend

---

THERE IS NO INSTRUCTIONAL GUIDE PROVIDED FOR THIS EO. REFER TO THE LESSON SPECIFICATION LOCATED IN A-CR-CCP-601/PG-001, *ROYAL CANADIAN SEA CADETS PHASE ONE QUALIFICATION STANDARD AND PLAN*.

THIS PAGE INTENTIONALLY LEFT BLANK