



RETURN BIDS TO:

RETOURNER LES SOUMISSIONS À:

Bid Receiving Public Works and Government
Services Canada/Réception des soumissions
Travaux publics et Services gouvernementaux
Canada

800 Burrard Street, Room 219

800, rue Burrard, pièce 219

Vancouver, BC V6Z 0B9

Bid Fax: (604) 775-7526

REQUEST FOR PROPOSAL DEMANDE DE PROPOSITION

Proposal To: Public Works and Government Services Canada

We hereby offer to sell to Her Majesty the Queen in right of Canada, in accordance with the terms and conditions set out herein, referred to herein or attached hereto, the goods, services, and construction listed herein and on any attached sheets at the price(s) set out therefor.

Proposition aux: Travaux Publics et Services Gouvernementaux Canada

Nous offrons par la présente de vendre à Sa Majesté la Reine du chef du Canada, aux conditions énoncées ou incluses par référence dans la présente et aux annexes ci-jointes, les biens, services et construction énumérés ici sur toute feuille ci-annexée, au(x) prix indiqué(s).

Comments - Commentaires

Vendor/Firm Name and Address

Raison sociale et adresse du

fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution

Public Works and Government Services Canada - Pacific
Region

219 - 800 Burrard Street

800, rue Burrard, pièce 219

Vancouver, BC V6Z 0B9

Title - Sujet Mountain Biking WCTC	
Solicitation No. - N° de l'invitation W4295-18C008/A	Date 2018-03-16
Client Reference No. - N° de référence du client W4295-18C008	
GETS Reference No. - N° de référence de SEAG PW-\$VAN-582-8318	
File No. - N° de dossier VAN-7-40398 (582)	CCC No./N° CCC - FMS No./N° VME
Solicitation Closes - L'invitation prend fin at - à 02:00 PM on - le 2018-04-04	Time Zone Fuseau horaire Pacific Daylight Saving Time PDT
F.O.B. - F.A.B. Plant-Usine: <input type="checkbox"/> Destination: <input checked="" type="checkbox"/> Other-Autre: <input type="checkbox"/>	
Address Enquiries to: - Adresser toutes questions à: Lee, Hilda	Buyer Id - Id de l'acheteur van582
Telephone No. - N° de téléphone (604) 764-6053 ()	FAX No. - N° de FAX (604) 775-7526
Destination - of Goods, Services, and Construction: Destination - des biens, services et construction: DEPARTMENT OF NATIONAL DEFENCE WCSTC 45 Fireweed Drive WHITEHORSE Yukon Y1A 5T8 Canada	

Instructions: See Herein

Instructions: Voir aux présentes

Delivery Required - Livraison exigée See Herein	Delivery Offered - Livraison proposée
Vendor/Firm Name and Address Raison sociale et adresse du fournisseur/de l'entrepreneur	
Telephone No. - N° de téléphone Facsimile No. - N° de télécopieur	
Name and title of person authorized to sign on behalf of Vendor/Firm (type or print) Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)	
Signature	Date

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Amd. No. - N° de la modif.
File No. - N° du dossier
VAN-7-40398

Buyer ID - Id de l'acheteur
VAN582
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PART 1 - GENERAL INFORMATION

1.1 Security Requirements

There is no security requirement associated with this requirement.

1.2 Statement of Work

Department of National Defence (DND), Whitehorse Cadet Training Centre (WCTC), Boyle Barracks has a requirement for instructors to conduct and supervise mountain bike training, one two-day trip and three five-day overnight trips in the Yukon Territory. All activities will occur between July 10th, 201 and August 18th, 2018. Bidder must meet all the mandatory technical criteria listed in Annex D.

1.3 Comprehensive Land Claims Agreement(s)

This procurement is subject to the following Comprehensive Land Claims Agreement(s):

- Umbrella Final Agreement - Council for Yukon Indians
- Gwich'in Comprehensive Land Claim Agreement

1.4 Debriefings

Bidders may request a debriefing on the results of the bid solicitation process. Bidders should make the request to the Contracting Authority within 15 working days from receipt of the results of the bid solicitation process. The debriefing may be in writing, by telephone or in person.

1.5 Trade Agreements

The requirement is subject to the provisions of the Canadian Free Trade Agreement (CFTA).

1.6 Canadian Content

The requirement is subject to a preference for Canadian goods and/or services.

PART 2 - BIDDER INSTRUCTIONS

2.1 Standard Instructions, Clauses and Conditions

All instructions, clauses and conditions identified in the bid solicitation by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

Bidders who submit a bid agree to be bound by the instructions, clauses and conditions of the bid solicitation and accept the clauses and conditions of the resulting contract.

The [2003](#) (2017-04-27) Standard Instructions - Goods or Services - Competitive Requirements, are incorporated by reference into and form part of the bid solicitation.

Subsection 5.4 of [2003](#), Standard Instructions - Goods or Services - Competitive Requirements, is amended as follows:

Delete: 60 days
Insert: 120 days

2.2 Submission of Bids

Bids must be submitted only to Public Works and Government Services Canada (PWGSC) Bid Receiving Unit by the date, time and place indicated on page 1 of the bid solicitation.

2.3 Former Public Servant

Contracts awarded to former public servants (FPS) in receipt of a pension or of a lump sum payment must bear the closest public scrutiny, and reflect fairness in the spending of public funds. In order to comply with Treasury Board policies and directives on contracts awarded to FPSs, bidders must provide the information required below before contract award. If the answer to the questions and, as applicable the information required have not been received by the time the evaluation of bids is completed, Canada will inform the Bidder of a time frame within which to provide the information. Failure to comply with Canada's request and meet the requirement within the prescribed time frame will render the bid non-responsive.

Definitions

For the purposes of this clause, "former public servant" is any former member of a department as defined in the [Financial Administration Act](#), R.S., 1985, c. F-11, a former member of the Canadian Armed Forces or a former member of the Royal Canadian Mounted Police. A former public servant may be:

- a. an individual;
- b. an individual who has incorporated;
- c. a partnership made of former public servants; or
- d. a sole proprietorship or entity where the affected individual has a controlling or major interest in the entity.

"lump sum payment period" means the period measured in weeks of salary, for which payment has been made to facilitate the transition to retirement or to other employment as a result of the implementation of various programs to reduce the size of the Public Service. The lump sum payment period does not include the period of severance pay, which is measured in a like manner.

"pension" means a pension or annual allowance paid under the [Public Service Superannuation Act](#) (PSSA), R.S., 1985, c. P-36, and any increases paid pursuant to the [Supplementary Retirement Benefits Act](#), R.S., 1985, c. S-24 as it affects the PSSA. It does not include pensions payable pursuant to the [Canadian Forces Superannuation Act](#), R.S., 1985, c. C-17, the [Defence Services Pension Continuation Act](#), 1970, c. D-3, the [Royal Canadian Mounted Police Pension Continuation Act](#), 1970, c. R-10, and the [Royal Canadian Mounted Police Superannuation Act](#), R.S., 1985, c. R-11, the [Members of Parliament Retiring Allowances Act](#), R.S. 1985, c. M-5, and that portion of pension payable to the [Canada Pension Plan Act](#), R.S., 1985, c. C-8.

Former Public Servant in Receipt of a Pension

As per the above definitions, is the Bidder a FPS in receipt of a pension? **Yes () No ()**

If so, the Bidder must provide the following information, for all FPSs in receipt of a pension, as applicable:

- a. name of former public servant;
- b. date of termination of employment or retirement from the Public Service.

By providing this information, Bidders agree that the successful Bidder's status, with respect to being a former public servant in receipt of a pension, will be reported on departmental websites as part of the published proactive disclosure reports in accordance with [Contracting Policy Notice: 2012-2](#) and the [Guidelines on the Proactive Disclosure of Contracts](#).

Work Force Adjustment Directive

Is the Bidder a FPS who received a lump sum payment pursuant to the terms of the Work Force Adjustment Directive? **Yes** () **No** ()

If so, the Bidder must provide the following information:

- a. name of former public servant;
- b. conditions of the lump sum payment incentive;
- c. date of termination of employment;
- d. amount of lump sum payment;
- e. rate of pay on which lump sum payment is based;
- f. period of lump sum payment including start date, end date and number of weeks;
- g. number and amount (professional fees) of other contracts subject to the restrictions of a work force adjustment program.

For all contracts awarded during the lump sum payment period, the total amount of fees that may be paid to a FPS who received a lump sum payment is \$5,000, including Applicable Taxes.

2.4 Enquiries - Bid Solicitation

All enquiries must be submitted in writing to the Contracting Authority no later than **seven (7) calendar days** before the bid closing date. Enquiries received after that time may not be answered.

Bidders should reference as accurately as possible the numbered item of the bid solicitation to which the enquiry relates. Care should be taken by Bidders to explain each question in sufficient detail in order to enable Canada to provide an accurate answer. Technical enquiries that are of a proprietary nature must be clearly marked "proprietary" at each relevant item. Items identified as "proprietary" will be treated as such except where Canada determines that the enquiry is not of a proprietary nature. Canada may edit the question(s) or may request that the Bidder do so, so that the proprietary nature of the question(s) is eliminated, and the enquiry can be answered to all Bidders. Enquiries not submitted in a form that can be distributed to all Bidders may not be answered by Canada.

2.5 Applicable Laws

Any resulting contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in British Columbia.

Bidders may, at their discretion, substitute the applicable laws of a Canadian province or territory of their choice without affecting the validity of their bid, by deleting the name of the Canadian province or territory specified and inserting the name of the Canadian province or territory of their choice. If no change is made, it acknowledges that the applicable laws specified are acceptable to the Bidders.

PART 3 - BID PREPARATION INSTRUCTIONS

3.1 Bid Preparation Instructions

Canada requests that bidders provide their bid in separately bound sections as follows:

Section I: Technical Bid (2 hard copies)

Section II: Financial Bid (1 hard copy)

Section III: Certifications (2 hard copies)

Canada requests that bidders follow the format instructions described below in the preparation of hard copy of their bid:

- (a) use 8.5 x 11 inch (216 mm x 279 mm) paper;
- (b) use a numbering system that corresponds to the bid solicitation.

In April 2006, Canada issued a policy directing federal departments and agencies to take the necessary steps to incorporate environmental considerations into the procurement process [Policy on Green Procurement](http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ecologisation-greening/achats-procurement/politique-policy-eng.html>). To assist Canada in reaching its objectives, bidders should:

- 1) use 8.5 x 11 inch (216 mm x 279 mm) paper containing fibre certified as originating from a sustainably-managed forest and containing minimum 30% recycled content; and
- 2) use an environmentally-preferable format including black and white printing instead of colour printing, printing double sided/duplex, using staples or clips instead of cerlox, duotangs or binders.

Section I: Technical Bid

In their technical bid, Bidders should explain and demonstrate how they propose to meet the requirements and how they will carry out the Work.

Bidders must demonstrate their compliance with the Mandatory Technical Criteria described in Annex "D" by providing substantial information describing completely and in details how the requirement is met or addressed.

Section II: Financial Bid

Bidders must submit their financial bid in accordance with the Basis of Payment.

3.1.1 Electronic Payment of Invoices – Bid

If you are willing to accept payment of invoices by Electronic Payment Instruments, complete Annex “X” Electronic Payment Instruments, to identify which ones are accepted.

If Annex “E” Electronic Payment Instruments is not completed, it will be considered as if Electronic Payment Instruments are not being accepted for payment of invoices.

Acceptance of Electronic Payment Instruments will not be considered as an evaluation criterion.

3.1.2 Exchange Rate Fluctuation

The requirement does not offer exchange rate fluctuation risk mitigation. Requests for exchange rate fluctuation risk mitigation will not be considered. All bids including such provision will render the bid non-responsive.

Section III: Certifications

Bidders must submit the certifications and additional information required under Part 5.

PART 4 - EVALUATION PROCEDURES AND BASIS OF SELECTION

4.1 Evaluation Procedures

- (a) Bids will be assessed in accordance with the entire requirement of the bid solicitation including the technical and financial evaluation criteria.
- (b) An evaluation team composed of representatives of Canada will evaluate the bids.
- (c) The evaluation team will determine first if there are two or more bids with a valid Canadian Content certification. In that event, the evaluation process will be limited to the bids with the certification; otherwise, all bids will be evaluated. If some of the bids with a valid certification are declared non-responsive, or are withdrawn, and less than two responsive bids with a valid certification remain, the evaluation will continue among those bids with a valid certification. If all bids with a valid certification are subsequently declared non-responsive, or are withdrawn, then all the other bids received will be evaluated.

4.1.1 Technical Evaluation

4.1.1.1 Mandatory Technical Criteria

See Annex D.

4.1.2 Financial Evaluation

SACC Manual Clause [A0220T](#) (2014-06-26), Evaluation of Price

4.2 Basis of Selection

A bid must comply with the requirements of the bid solicitation and meet all mandatory technical evaluation criteria to be declared responsive. The responsive bid with the lowest evaluated price will be recommended for award of a contract.

PART 5 – CERTIFICATIONS AND ADDITIONAL INFORMATION

Bidders must provide the required certifications and additional information to be awarded a contract.

The certifications provided by Bidders to Canada are subject to verification by Canada at all times. Unless specified otherwise, Canada will declare a bid non-responsive, or will declare a contractor in default if any certification made by the Bidder is found to be untrue whether made knowingly or unknowingly, during the bid evaluation period or during the contract period.

The Contracting Authority will have the right to ask for additional information to verify the Bidder's certifications. Failure to comply and to cooperate with any request or requirement imposed by the Contracting Authority will render the bid non-responsive or constitute a default under the Contract.

5.1 Certifications Required with the Bid

Bidders must submit the following duly completed certifications as part of their bid.

5.1.1 Integrity Provisions - Declaration of Convicted Offences

In accordance with the Integrity Provisions of the Standard Instructions, all bidders must provide with their bid, **if applicable**, the declaration form available on the [Forms for the Integrity Regime](http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html) website (<http://www.tpsgc-pwgsc.gc.ca/ci-if/declaration-eng.html>), to be given further consideration in the procurement process.

5.2 Certifications Precedent to Contract Award and Additional Information

The certifications and additional information listed below should be submitted with the bid, but may be submitted afterwards. If any of these required certifications or additional information is not completed and submitted as requested, the Contracting Authority will inform the Bidder of a time frame within which to provide the information. Failure to provide the certifications or the additional information listed below within the time frame provided will render the bid non-responsive.

5.2.1 Integrity Provisions – Required Documentation

In accordance with the section titled Information to be provided when bidding, contracting or entering into a real procurement agreement of the [Ineligibility and Suspension Policy](http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html) (<http://www.tpsgc-pwgsc.gc.ca/ci-if/politique-policy-eng.html>), the Bidder must provide the required documentation, as applicable, to be given further consideration in the procurement process.

5.2.2 Federal Contractors Program for Employment Equity - Bid Certification

By submitting a bid, the Bidder certifies that the Bidder, and any of the Bidder's members if the Bidder is a Joint Venture, is not named on the Federal Contractors Program (FCP) for employment equity "FCP Limited Eligibility to Bid" list available at the bottom of the page of the [Employment and Social Development Canada \(ESDC\) - Labour's](https://www.canada.ca/en/employment-social-development/canada/esdc/labour's) website (<https://www.canada.ca/en/employment-social-development/programs/employment-equity/federal-contractor-program.html#>).

Canada will have the right to declare a bid non-responsive if the Bidder, or any member of the Bidder if the Bidder is a Joint Venture, appears on the "FCP Limited Eligibility to Bid" list at the time of contract award.

5.2.3 Additional Certifications Precedent to Contract Award

5.2.3.1 Canadian Content Certification

This procurement is conditionally limited to Canadian services.

Subject to the evaluation procedures contained in the bid solicitation, bidders acknowledge that only bids with a certification that the service offered is a Canadian service, as defined in clause [A3050T](#), may be considered.

Failure to provide this certification completed with the bid will result in the service offered being treated as a non-Canadian service.

The Bidder certifies that:

() the service offered is a Canadian service as defined in paragraph 2 of clause [A3050T](#).

5.2.3.1.1 SACC Manual clause A3050T (2014-11-27) Canadian Content Definition

5.2.3.1.2 SACC Manual clause A3060C (2008-05-12) Canadian Content Certification

5.2.3.2 Status and Availability of Resources

The Bidder certifies that, should it be awarded a contract as a result of the bid solicitation, every individual proposed in its bid will be available to perform the Work as required by Canada's representatives and at the time specified in the bid solicitation or agreed to with Canada's representatives. If for reasons beyond its control, the Bidder is unable to provide the services of an individual named in its bid, the Bidder may propose a substitute with similar qualifications and experience. The Bidder must advise the Contracting Authority of the reason for the substitution and provide the name, qualifications and experience of the proposed replacement. For the purposes of this clause, only the following reasons will be considered as beyond the control of the Bidder: death, sickness, maternity and parental leave, retirement, resignation, dismissal for cause or termination of an agreement for default.

If the Bidder has proposed any individual who is not an employee of the Bidder, the Bidder certifies that it has the permission from that individual to propose his/her services in relation to the Work to be performed and to submit his/her résumé to Canada. The Bidder must, upon request from the Contracting Authority, provide a written confirmation, signed by the individual, of the permission given to the Bidder and of his/her availability.

5.2.3.3 Education and Experience

5.2.3.3.1 SACC Manual clause [A3010T](#) (2010-08-16) Education and Experience

5.2.3.4 Workers Compensation – Letter of Good Standing

The Bidder must have an account in good standing with the applicable provincial or territorial Workers' Compensation Board.

The Bidder must provide, within ten (10) days following a request from the Contracting Authority, a certificate or letter from the applicable Workers' Compensation Board confirming the Bidder's good standing account. Failure to comply with the request may result in the bid being declared non-responsive.

PART 6 - RESULTING CONTRACT CLAUSES

The following clauses and conditions apply to and form part of any contract resulting from the bid solicitation.

6.1 Security Requirements

6.1.1 There is no security requirement applicable to the Contract.

6.2 Statement of Work

The Contractor must perform the Work in accordance with the Statement of Work at Annex "A".

6.3 Standard Clauses and Conditions

All clauses and conditions identified in the Contract by number, date and title are set out in the [Standard Acquisition Clauses and Conditions Manual](https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual) (<https://buyandsell.gc.ca/policy-and-guidelines/standard-acquisition-clauses-and-conditions-manual>) issued by Public Works and Government Services Canada.

6.3.1 General Conditions

[2010C](#) (2016-04-04), General Conditions - Services (Medium Complexity) apply to and form part of the Contract.

6.4 Term of Contract

6.4.1 Period of the Contract

The period of the Contract is one year from contract award date. The work is to be performed is to be performed during the period of July 10, 2018 to August 18, 2018, inclusive.

6.4.2 Option to Extend the Contract

The Contractor grants to Canada the irrevocable option to extend the term of the Contract by up to two (2) additional one year period(s) under the same conditions. The Contractor agrees that, during the extended period of the Contract, it will be paid in accordance with the applicable provisions as set out in the Basis of Payment.

Canada may exercise this option at any time by sending a written notice to the Contractor at least 15 calendar days before the expiry date of the Contract. The option may only be exercised by the Contracting Authority, and will be evidenced for administrative purposes only, through a contract amendment.

6.4.3 Comprehensive Land Claims Agreement(s)

The Contract is subject to the following Comprehensive Land Claims Agreement:

- Umbrella Final Agreement – Council for Yukon Indians

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W4295-18C008

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File No. - N° du dossier
VAN-7-40398

Buyer ID - Id de l'acheteur
VAN582
CCC No./N° CCC - FMS No./N° VME

- Gwich'in Comprehensive Land Claim Agreement

6.5 Authorities

6.5.1 Contracting Authority

The Contracting Authority for the Contract is:

Hilda Lee
Supply Specialist
Public Services and Procurement Canada
Acquisitions Branch, Pacific Region
219 - 800 Burrard Street
Vancouver, BC V6Z 0B9

Telephone: 604-764-6053
Facsimile: 604-775-7526
E-mail Address: Hilda.Lee@pwgsc.gc.ca

The Contracting Authority is responsible for the management of the Contract and any changes to the Contract must be authorized in writing by the Contracting Authority. The Contractor must not perform work in excess of or outside the scope of the Contract based on verbal or written requests or instructions from anybody other than the Contracting Authority.

6.5.2 Project Authority

The Project Authority for the Contract is:

(to be inserted at Contract award)

The Project Authority is the representative of the department or agency for whom the Work is being carried out under the Contract and is responsible for all matters concerning the technical content of the Work under the Contract. Technical matters may be discussed with the Project Authority, however the Project Authority has no authority to authorize changes to the scope of the Work. Changes to the scope of the Work can only be made through a contract amendment issued by the Contracting Authority.

6.5.3 Contractor's Representative

Name: _____

Organization: _____

Address: _____

Telephone: _____

Facsimile: _____

E-mail Address: _____

6.6 Proactive Disclosure of Contracts with Former Public Servants

By providing information on its status, with respect to being a former public servant in receipt of a [Public Service Superannuation Act](#) (PSSA) pension, the Contractor has agreed that this information will be reported on departmental websites as part of the published proactive disclosure reports, in accordance with [Contracting Policy Notice: 2012-2](#) of the Treasury Board Secretariat of Canada.

6.7 Payment

6.7.1 Basis of Payment

In consideration of the Contractor satisfactorily completing all of its obligations under the Contract, the Contractor will be paid a firm lot price(s), as specified in Annex "B" for a cost of **C\$**_____ (to be inserted of Contact award). Customs duties are included and Applicable Taxes are extra.

6.7.2 Limitation of Price

SACC Manual clause [C6000C](#) (2017-08-17) Limitation of Price

6.7.3 Method of Payment

H1000C (2008-05-12) – Single Payment

6.7.4 Electronic Payment of Invoices – Contract

The Contractor accepts to be paid using any of the following Electronic Payment Instrument(s):

6.8 Invoicing Instructions

6.8.1 The Contractor must submit invoices in accordance with the section entitled "Invoice Submission" of the general conditions. Invoices cannot be submitted until all work identified in the invoice is completed.

6.8.2 Invoices must be distributed as follows:

(a) The Original copy must be forwarded to the addressee shown on page 1 of the Contract for certification and payment.

(b) One (1) copy must be forwarded to the Contracting Authority identified under the section entitled "Authorities" of the Contract.

6.9 Certifications and Additional Information

6.9.1 Compliance

Unless specified otherwise, the continuous compliance with the certifications provided by the Contractor in its bid or precedent to contract award, and the ongoing cooperation in providing additional information are conditions of the Contract and failure to comply will constitute the Contractor in default. Certifications are subject to verification by Canada during the entire period of the Contract.

6.9.2 SACC Manual Clauses

A0285C (2007-05-25) Workers Compensation
A3060C (2008-05-12) Canadian Content Certification

6.10 Applicable Laws

The Contract must be interpreted and governed, and the relations between the parties determined, by the laws in force in British Columbia.

6.11 Priority of Documents

If there is a discrepancy between the wording of any documents that appear on the list, the wording of the document that first appears on the list has priority over the wording of any document that subsequently appears on the list.

- (a) the Articles of Agreement;
- (b) the general conditions 2010C (2016-04-04), General Conditions – Services (Medium Complexity);
- (c) Annex A, Statement of Work;
- (d) Annex B, Basis of Payment;
- (e) Annex C, Insurance Requirements;
- (f) the Contractor's bid dated _____.

6.12 Insurance – Specific Requirements

The Contractor must comply with the insurance requirements specified in Annex “C”. The Contractor must maintain the required insurance coverage for the duration of the Contract. Compliance with the insurance requirements does not release the Contractor from or reduce its liability under the Contract.

The Contractor is responsible for deciding if additional insurance coverage is necessary to fulfill its obligation under the Contract and to ensure compliance with any applicable law. Any additional insurance coverage is at the Contractor's expense, and for its own benefit and protection.

The Contractor must forward to the Contracting Authority within ten (10) days after the date of award of the Contract, a Certificate of Insurance evidencing the insurance coverage and confirming that the insurance policy complying with the requirements is in force. For Canadian-based Contractors, coverage must be placed with an Insurer licensed to carry out business in Canada, however, for Foreign-based Contractors, coverage must be placed with an Insurer with an A.M. Best Rating no less than “A-”. The Contractor must, if requested by the Contracting Authority, forward to Canada a certified true copy of all applicable insurance policies.

6.13 SACC Manual Clauses

A9062C (2011-05-16) Canadian Forces Site Regulations

ANNEX "A"

STATEMENT OF WORK

WHITEHORSE CADET TRAINING CENTRE – BIKE ACTIVITIES

1. Title and Date

- 1.1 Bike Activities -Whitehorse Cadet Training Centre (WCTC)
- 1.2 Period of the Contract: One year from contract award date.
- 1.3 Option to extend: The Contractor grants Canada the irrevocable option to extend the term of the Contract by up to two (2) additional 1 year periods under the same conditions.

2. Background

- 2.1 The purpose of WCTC operations is to further the objectives of the Canadian Cadet Movement, for youth aged 12 to 18, by providing leadership and skills training for cadets to use at their home units. Training at WCTC ranges from basic indoctrination for new cadets to leadership, team building and instructional techniques training for second and third year cadets, and on the job training for fourth and fifth year cadets. Training is carried out during July and August of each year.
- 2.2 Located at Boyle Barracks, 20km south of Whitehorse, YT, WCTC is the only Cadet Training Centre "North of 60°". 40% of the course cadets come from the Territories. Our area of operations covers an area of the Yukon Territory consisting of the Robert Campbell Highway to the north, the South Canol Road to the east, Tagish to the south and Kusawa Lake to the west.
- 2.3 All training offered at WCTC is in order to meet the requirements of each performance and enabling objective (relevant versions enclosed) which is the reference document for all activities. Training is also focused on expedition activities which aim to develop leadership skills while enhancing individual self-concepts such as self-confidence, self-reliance, self-esteem and self-discipline.
- 2.4 Safety Standards for all bike activities are as per A-CR-CCP-951/PT-002 Adventure Training Safety Standards (relevant version enclosed).
- 2.5 Each group undergoing training will be directly supervised by a Canadian Armed Forces (CAF) Member or Regional Cadet Support Unit (NW) Employee. This person will participate in all activities but does not count towards the instructor to student ratio.
- 2.6 The courses offered at WCTC that are relevant have the following aims:
 - 2.6.1. The Expedition Instructor (EI) Course is a 40 day long course to develop a specialist with the skills and subject matter knowledge required to be an instructor of expedition subjects and a team leader during an expedition. These cadets will generally be 14 to 15 years of age.

2.6.2. The Basic Expedition (BE) course is a 19 day long course to initiate cadets to the outdoors while integrating field training into an expedition setting. These cadets will generally be 13 to 14 years of age.

2.7 The objectives of bike activities are:

2.7.1. To encourage outdoor physical activity; and

2.7.2. To enable personnel to safely bike the roads and trails of this country.

2.8 Bike activities can be broken down in two main categories: training and tripping.

2.8.1. Training refers to an activity limited to a single location usually a day or less in length. Most training activities will have performance and enabling objectives and performance checks (PC) for the instructor to teach and evaluate.

2.8.2. Tripping is an activity that moves from one point to another usually overnight for the day.

3. Objectives

3.1. This requirement is for the provision of instructors to conduct and supervise mountain bike training, one two-day trip, and three five-day overnight trips in the Yukon Territory. All activities will occur between 10 July 2018 and 18 August 2018.

4. Scope of Work

4.1 The Contractor will be required to provide instruction, supervision, technical expertise, navigation in mountain biking and camping during training sessions, a two-day long trip, and three five-day long trips in an isolated environment in order to meet the Performance and Enabling Objectives (as detailed below in Section 10 and in attachments) and in accordance with the Adventure Training Safety Standards, and under the direction of a CAF Member or Regional Cadet Support Unit (NW) Employee. This plan is subject to change with respect to the order and layout of training, but not subject matter, without prior consultation between the Training Authority and the Contractor. The schedule of work with remarks is included in Section 10.

5. Instructor Requirements

5.1 All instructors must have valid Vulnerable Sector Screening (working with youth aged 12-18 yrs) and Police Records Check (proof of compliance must be provided to the DND Project Authority prior to contract award, and be familiar with the enclosed performance and enabling objectives, and A-CR-CCP-951/PT-002 Adventure Training Safety Orders.

5.2 All instructors must have experience and qualifications from a recognized organisation in mountain biking or outdoor guiding. Those that are not certified may be considered pending experience. Recognized organisations include CANBIKE, Association of Canadian Mountain Guides, International Mountain Bike Guides Association of Canada, Professional Mountain Bike Instructor Association, or a post-secondary institution.

5.3 All instructors for activities (Section 10, Activities A-G) must be as a minimum (proof of compliance must be provided prior to contract award:

-
- 5.3.1. Currently and validly certified in Standard First Aid;
 - 5.3.2. Experienced in instructing groups, preferably youth groups;
 - 5.3.3. Experienced in the field repair and maintenance of bikes; and
 - 5.3.4. Skilled in biking to an intermediate level.
- 5.4 Instructors for the five-day trips (Section 10, Activities H-J) must be as a minimum (proof of compliance must be provided prior to contract award:
- 5.4.1. Currently and validly certified in Wilderness First Responder;
 - 5.4.2. Thoroughly familiar with the route;
 - 5.4.3. Experienced in acting as a leader or assistant leader on similar routes;
 - 5.4.4. Experienced in the field repair and maintenance of bikes; and
 - 5.4.5. Skilled in biking to an intermediate level.
- 6. Responsibilities**
- 6.1 The Contractor is responsible for:
- 6.1.1. Providing qualified personnel in accordance with the instructor requirements detailed in section 5.
 - 6.1.2. Providing all clothing, camping equipment, transportation and rations for Contractor personnel
 - 6.1.2. The conduct and supervision of all technical and safety aspects of the activity in accordance with Adventure Training Safety Standards, and QSPs;
 - 6.1.3. Providing navigation during tripping;
 - 6.1.4. Being thoroughly familiar with routes, possible campsites, and water points;
 - 6.1.5. Familiarising instructors and selecting routes and areas for training at Mary Lake with the objective of accomplishing the enabling objectives with minimal risk;
 - 6.1.6. Providing interpretive information along tripping routes of historical or natural significance and assist with camping routine;
 - 6.1.7. Being alert for and reacting to teachable moments to reinforce basic tripping and camping skills;
 - 6.1.8. Ensuring the minimal number of instructors are ready to instruct the activities assigned prior to the start times listed herein;
 - 6.1.9. Performing, or supervising, the field maintenance or repair of bikes with DND supplied parts and equipment during activities;

-
- 6.1.10. Providing personal clothing, navigation equipment and maps, communications equipment, camping equipment, transportation, bikes, helmets, and rations for all instructors attending all activities;
 - 6.1.11. Assisting in planning of emergency procedures for the Trips;
 - 6.1.12. Participating in briefings and debriefings with the Officer in Charge and Students;
 - 6.1.13. Providing first aid to all on all activities;
 - 6.1.14. Providing first aid kits suitable, and sufficiently stocked including backboard, for the Activity and the instructor's qualification in accordance with Adventure Training Safety Standards;
 - 6.1.15. Appointing a liaison person to be on call (24–7) during activities and during regular office hours while an activity is not being conducted;
 - 6.1.16. Conducting themselves in accordance with the following rules and policies:
 - 6.1.16.1. Smoking during instruction or transportation is prohibited;
 - 6.1.16.2. The selling or giving of tobacco products to cadets is prohibited;
 - 6.1.16.3. Refraining from smoking in the presence of cadets;
 - 6.1.16.4. Smoking will only occur in designated areas separate and away from cadets;
 - 6.1.16.5. No drug use unless the individual is authorised to use the drug by a qualified medical or dental practitioner for the purposes of medical treatment or dental care or the drug is contained in a non-prescription medication used by the individual in accordance with the instructions accompanying the medication;
 - 6.1.16.6. To not introduce, possess, consume, or be under the influence of alcohol within eight hours of expected contact with cadets, while working with cadets, or in transport with cadets; and
 - 6.1.16.7. Relationships with cadets of an emotional, romantic, or sexual nature are not permitted. Reporting disciplinary problems to the Officer in Charge; and
 - 6.1.17. Providing reports as per Section 8.
- 6.2 DND is responsible for:
- 6.2.1. Appointing an Training Centre Coordinator who will coordinate details with the contractor;
 - 6.2.2. Arranging and paying for all permits or rights of access to training areas, camping spots, or other locations including those covered under the Comprehensive Land Claim Agreements;
 - 6.2.3. Appointing an Officer in Charge for each activity who will oversee each activity;
 - 6.2.4. Providing direction to contractor during activities within the scope of this contract;

-
- 6.2.5. Ensuring discipline amongst the group;
 - 6.2.6. Providing personal clothing, camping equipment, transportation of cadets and equipment, bikes, helmets, and rations for all cadet and CAF personnel attending all activities;
 - 6.2.7. Providing parts, materials, and tools needed for the field repair of mountain bikes
 - 6.2.8. Paying any third party costs associated with emergency procedures or communications device use;
 - 6.2.9. Providing communications devices for emergency and administrative use;
 - 6.2.10. Providing emergency plans and support for activities.

7. Language of Work

- 7.1 The language of work, reports, and deliverables will be English.

8. Reports and Deliverables

- 8.1 Names, resumes, and copies of all required certifications and Police Record Check and Vulnerable Sector Screening must be provided for all personnel (including management) to the Project Authority prior to contract award.
- 8.2. Written report before the completion of cadet training on the achievement of the objectives. The report is to list observed strengths and weakness for each aspect of the training and should contain recommendations for improvement. Equipment or support deficiencies and recommendations should be included in the report.

9. Applicable Documents.

- 9.1 Relevant performance and enabling objectives, and Cadet Administration and Training Orders are enclosed.

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10. Schedule of Work

Activity	Start Date (2018)	Time Start (Hrs)	End Date (2018)	End Time (Hrs)	Group	Activity	Location	# of Personnel Participating	# of Students under Instructor to Student Ratio	Instr Req'd (addn'l instr permitted)	EOs	Remarks
A	11 Jul	0800	11 Jul	1700	EI	Training	WCTC	35	31	3	S351.01 to S351.03	Subdivided into three groups. Slight overnumber of students is authorised.
B	13 Jul	0800	14 Jul	1700	EI	Training	WCTC	35	31	3	S351.01 to S351.04	Subdivided into three groups. Slight overnumber of students is authorised.
C	13 Jul	0830	14 Jul	1630	BE	Training	Mary Lake	36	34	3	S251.03	Subdivided into three groups. Slight overnumber of students is authorised.
D	18 Jul	0800	18 Jul	1700	EI	Training	Spirit Lake to Carcross Area	35	31	3	S351.04	Subdivided into three groups. Slight overnumber of students is authorised.
E	19 Jul	0800	19-Jul	1700	EI	Training	Spirit Lake to Carcross Area	35	31	3	S352.01 & S352.02	Subdivided into three groups. Slight overnumber of students is authorised.
F	20 Jul	0800	20 Jul	1700	EI	Training	Spirit Lake to Carcross Area	35	31	3	S352.01 & S352.02	Subdivided into three groups. Slight overnumber of students is authorised.
G	21 Jul	0800	22 Jul	1700	BE	Tripping	Schwatka Lake to Chadburn Lake Area to Robert Service Campground.	36	34	4	S226.04& S251PC	Subdivided into three groups. Route map at Section 11. Slight overnumber of students is authorised.

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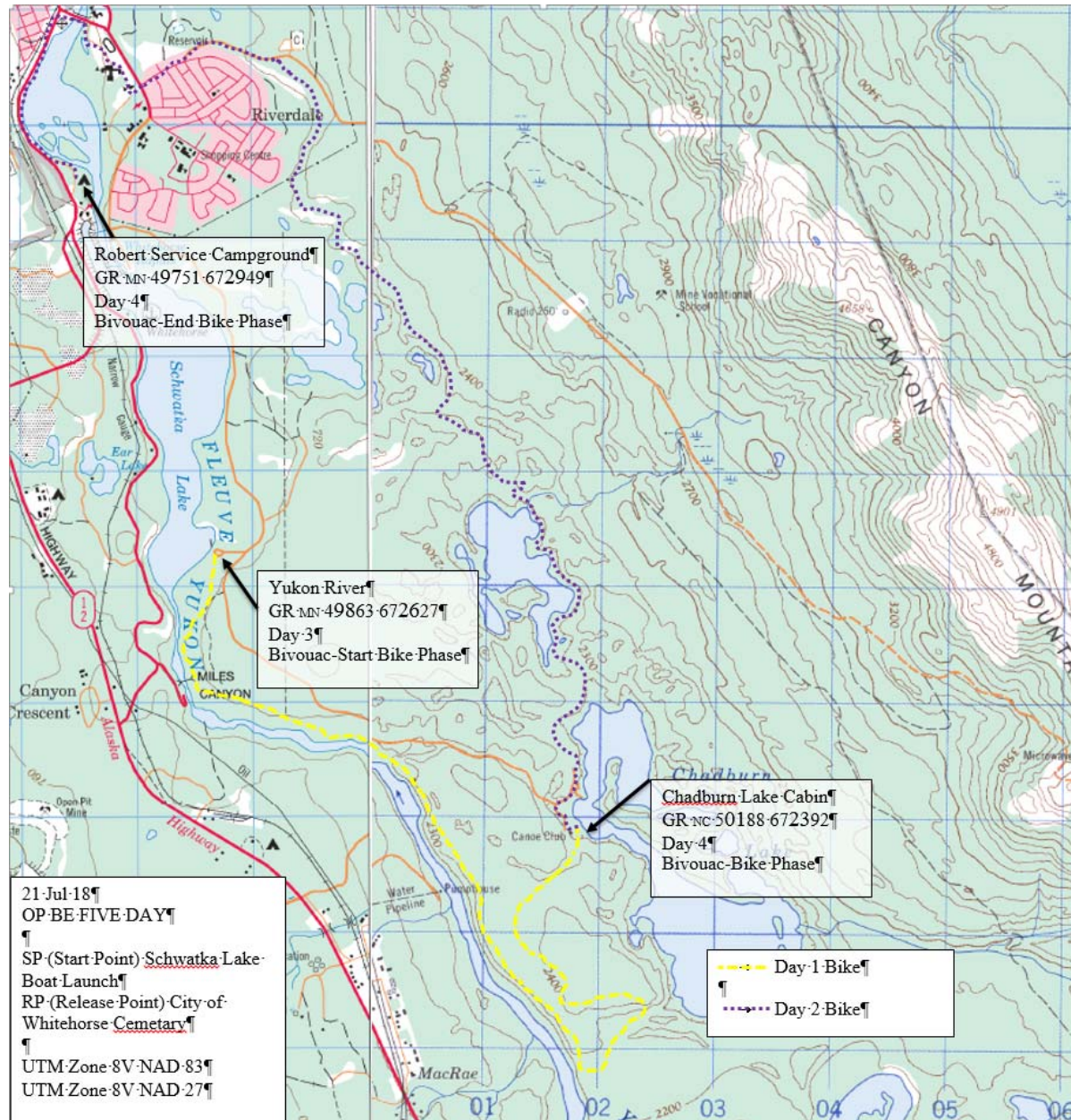
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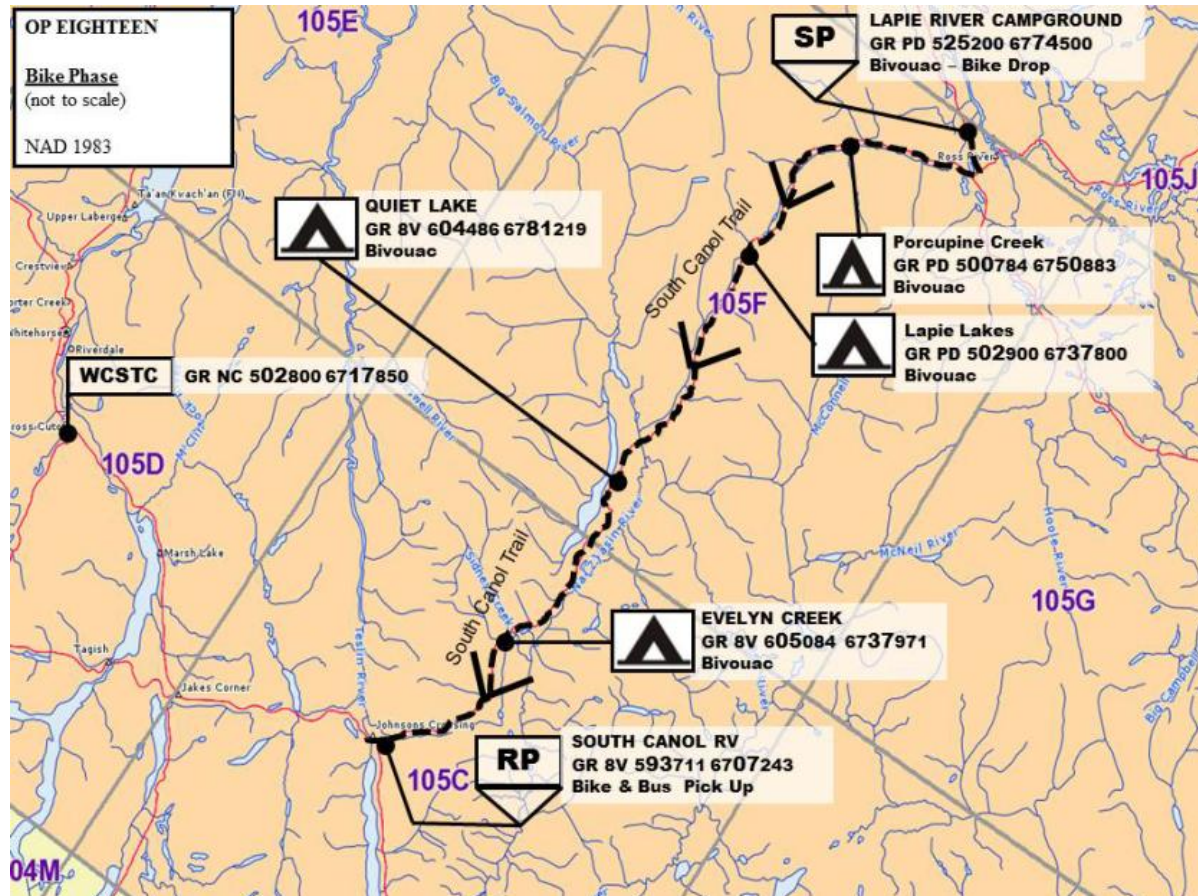
Activity	Start Date (2018)	Time Start Time (Hrs)	End Date (2018)	End Time (Hrs)	Group	Activity	Location	# of Personnel Participating	# of Students under Instructor to Student Ratio	Instr Req'd (addn'l instr permitted)	EOs	Remarks
H	26 Jul	0800	30 Jul	1700	EI	Tripping	Lapie Canyon Campground to Teslin River along South Canol Trail	22	20	2	S355.04D	Subdivided into two teams. Route map at Section 11.
I	1 Aug	0800	5 Aug	1700	EI	Tripping	Lapie Canyon Campground to Teslin River along South Canol Trail	22	20	2	S355.04D	Subdivided into two teams. Route map at Section 11.
J	7 Aug	0800	11 Aug	1700	EI	Tripping	Lapie Canyon Campground to Teslin River along South Canol Trail	22	20	2	S355.04D	Subdivided into two teams. Route map at Section 11.

11. Routes

11.1 Activity G



11.2 Activity H-J



Basis of Pricing:

- Firm Lot Prices are quoted in Canadian Dollars, applicable taxes excluded. The applicable taxes will be applied as a separate line item to any invoice issued as a result of a Contract.
- The quoted prices are all inclusive Firm Lot Prices per Activity and includes all labour, tools, equipment, profit, overhead, transportation costs, and travel and living expenses required to do the Work. No other charges will be allowed. No rental charges will be paid for tools or equipment incidental to the trade.

Description	(A) FIRM LOT PRICE Initial Requirement – one year from contract award date	(B) FIRM LOT PRICE Option Year 1	(C) FIRM LOT PRICE Option Year 2	Extended Price (A) + (B) + (C)
All-inclusive course fee, conforming to the Statement of Work in Annex “A”	\$ _____	\$ _____	\$ _____	\$ _____
	Total Aggregate Evaluation Price A) + (B) + (C), Applicable taxes extra:			\$ _____

ANNEX "C"

INSURANCE REQUIREMENTS

Commercial General Liability Insurance

1. The Contractor must obtain Commercial General Liability Insurance, and maintain it in force throughout the duration of the Contract, in an amount usual for a contract of this nature, but for not less than \$2,000,000 per accident or occurrence and in the annual aggregate.
2. The Commercial General Liability policy must include the following:
 - a. Additional Insured: Canada is added as an additional insured, but only with respect to liability arising out of the Contractor's performance of the Contract. The interest of Canada should read as follows: Canada, as represented by Public Works and Government Services Canada.
 - b. Bodily Injury and Property Damage to third parties arising out of the operations of the Contractor.
 - c. Products and Completed Operations: Coverage for bodily injury or property damage arising out of goods or products manufactured, sold, handled, or distributed by the Contractor and/or arising out of operations that have been completed by the Contractor.
 - d. Personal Injury: While not limited to, the coverage must include Violation of Privacy, Libel and Slander, False Arrest, Detention or Imprisonment and Defamation of Character.
 - e. Cross Liability/Separation of Insureds: Without increasing the limit of liability, the policy must protect all insured parties to the full extent of coverage provided. Further, the policy must apply to each Insured in the same manner and to the same extent as if a separate policy had been issued to each.
 - f. Blanket Contractual Liability: The policy must, on a blanket basis or by specific reference to the Contract, extend to assumed liabilities with respect to contractual provisions.
 - g. Employees and, if applicable, Volunteers must be included as Additional Insured.
 - h. Employers' Liability (or confirmation that all employees are covered by Worker's compensation (WSIB) or similar program)
 - i. Broad Form Property Damage including Completed Operations: Expands the Property Damage coverage to include certain losses that would otherwise be excluded by the standard care, custody or control exclusion found in a standard policy.
 - j. Notice of Cancellation: The Insurer will endeavour to provide the Contracting Authority thirty (30) days written notice of policy cancellation.
 - k. If the policy is written on a claims-made basis, coverage must be in place for a period of at least 12 months after the completion or termination of the Contract.
 - l. Owners' or Contractors' Protective Liability: Covers the damages that the Contractor becomes legally obligated to pay arising out of the operations of a subcontractor.
 - m. Non-Owned Automobile Liability - Coverage for suits against the Contractor resulting from the use of hired or non-owned vehicles.
 - n. Litigation Rights: Pursuant to subsection 5(d) of the [Department of Justice Act](#), S.C. 1993, c. J-2, s.1, if a suit is instituted for or against Canada which the Insurer would, but for this clause, have the right to pursue or defend on behalf of Canada as an Additional Named Insured under the insurance policy, the Insurer must promptly contact the Attorney General of Canada to agree on the legal strategies by sending a letter, by registered mail or by courier, with an acknowledgement of receipt.

For the province of Quebec, send to:

*Director Business Law Directorate,
Quebec Regional Office (Ottawa),
Department of Justice,*

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*284 Wellington Street, Room SAT-6042,
Ottawa, Ontario, K1A 0H8*

For other provinces and territories, send to:

*Senior General Counsel,
Civil Litigation Section,
Department of Justice
234 Wellington Street, East Tower
Ottawa, Ontario K1A 0H8*

A copy of the letter must be sent to the Contracting Authority. Canada reserves the right to co-defend any action brought against Canada. All expenses incurred by Canada to co-defend such actions will be at Canada's expense. If Canada decides to co-defend any action brought against it, and Canada does not agree to a proposed settlement agreed to by the Contractor's insurer and the plaintiff(s) that would result in the settlement or dismissal of the action against Canada, then Canada will be responsible to the Contractor's insurer for any difference between the proposed settlement amount and the amount finally awarded or paid to the plaintiffs (inclusive of costs and interest) on behalf of Canada.

ANNEX "D"

MANDATORY TECHNICAL EVALUATION CRITERIA

	Mandatory Technical Criteria
1.0	<p>Experience:</p> <p>Bidder must have experience performing services similar to what is contained in the Statement of Work in Annex A.</p> <p>Experience must be demonstrated by providing details of at least two (2) projects within the last five (5) years of similar size, scope and complexity to the requirement described in the Statement of Work.</p> <p>For <u>each</u> project, the Bidder must provide the following information, at a minimum:</p> <ul style="list-style-type: none">- Brief description of work;- Contact information for Client (name, address, telephone number, e-mail address);- Volume of work that includes: number of trips, number of instructors, number of participants i.e. 20 trips with 15-20 participants and 2 instructors each trip;- Age range of participants;- Project dates and duration of trips;- Locations of trips; and- Total dollar value. <p>Note: Canada reserves the right to contact the client using the contact information provided in order to confirm the information submitted by the Bidder.</p>
2.0	<p>Instructor Requirements:</p> <p>All instructors must have Vulnerable Sector Screening (working with youth aged 12-18 years), Police Records Check and be familiar with DND publication Adventure Training Safety Orders (A-CR-CCP-951/PT-002)</p> <p>All instructors must have experience and qualifications from a recognized organization in mountain biking or outdoor guiding. Those that are not certified may be considered pending experience. Recognized organizations include CANBIKE, Association of Canadian Mountain Guides, International Mountain Bike Guides Association of Canada, Professional Mountain Bike Instructor Association, or a post-secondary institution.</p> <p>All instructors for activities (Section 10), Activities A-G) must be as a minimum (proof of compliance must be provided prior to contract award:</p> <ul style="list-style-type: none">- Currently and validly certified in Standard First Aid;- Experienced in instructing groups, preferably youth groups;- Experienced in the field repair and maintenance of bikes; and

	<ul style="list-style-type: none">- Skilled in biking to an intermediate level. <p>Instructors for the five-day trips (Section 10, Activities H-J) must be as a minimum (proof of compliance must be provided prior to contract award:</p> <ul style="list-style-type: none">- Currently and validly certified in Wilderness First Responder;- Thoroughly familiar with the route;- Experienced in acting as a leader or assistant leader on similar routes;- Experienced in the field repair and maintenance of bikes; and- Skilled in biking to an intermediate level <p>All certifications must be available prior to contract award</p>
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ANNEX “E” to PART 3 OF THE BID SOLICITATION

ELECTRONIC PAYMENT INSTRUMENTS

The Bidder accepts any of the following Electronic Payment Instrument(s):

- ☐ () VISA Acquisition Card;
- ☐ () MasterCard Acquisition Card;
- ☐ () Direct Deposit (Domestic and International);
- ☐ () Electronic Data Interchange (EDI);
- ☐ () Wire Transfer (International Only);
- ☐ () Large Value Transfer System (LVTS) (Over \$25M)

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FORM A – Bid Submission Form

Bid Submission Form	
Bidder's full legal name	
Authorized Representative of Bidder for evaluation purposes (e.g., clarifications)	Name
	Title
	Address
	Fax #
	Email
Bidder's Procurement Business Number (PBN) [see the Standard Instructions 2003]	
Jurisdiction of Contract: Province in Canada the bidder wishes to be the legal jurisdiction applicable to any resulting contract (if other than as specified in solicitation)	
Federal Contractors Program for Employment Equity (FCPEE) Certification:	
COMPLETE LIST OF NAMES OF ALL INDIVIDUALS WHO ARE CURRENT BOARD OF DIRECTORS OF THE BIDDER:	
NAME	TITLE
On behalf of the Bidder, by signing below, I confirm that I have read the entire bid solicitation including the documents incorporated by reference into the bid solicitation and I certify that:	
1. The Bidder considers itself and its products able to meet all the mandatory requirements described in the bid solicitation;	
2. This bid is valid for the period requested in the bid solicitation;	
3. All the information provided in the bid is complete, true and accurate; and	
4. If the Bidder is awarded a contract, it will accept all the terms and conditions set out in the resulting contract clauses included in the bid solicitation.	
Signature of Authorized Representative of Bidder	

FORM B: Substantiation of Technical Compliance Form

GENERAL INSTRUCTION

- 1) Bidders are requested to:
 - a) indicate opposite each specification under **MANDATORY SPECIFICATIONS**, in the right hand margin under **Comply**, whether the Bidder meets or does not meet the requirements and;
 - b) reference the page number(s) in the provided Technical literature and in the Technical literature, highlight the technical information that supports your compliance with the mandatory specifications below.
- 2) It must be to your advantage to furnish as much detail as possible to support the specifications your comments / claims of compliance for each specification.
- 3) Canada is under NO obligation to seek clarification of the bid(s) or the supporting technical documentation provided. Bidders should note that failure to demonstrate any capability to which they claim compliance must result in their proposal being considered non-responsive. Any deviation is to be clearly identified and supported with full details.

No.	Mandatory Specification	Comply (Y/N)	Provide Page # and or comments
1.	<p>Experience:</p> <p>Bidder must have experience performing services similar to what is contained in the Statement of Work in Annex A.</p> <p>Experience must be demonstrated by providing details of at least two (2) projects within the last five (5) years of similar size, scope and complexity to the requirement described in the Statement of Work.</p> <p>For <u>each</u> project, the Bidder must provide the following information, at a minimum:</p> <ul style="list-style-type: none">- Brief description of work;- Contact information for Client (name, address, telephone number, e-mail address);- Volume of work that includes: number of trips, number of instructors, number of participants i.e. 20 trips with 15-20 participants and 2 instructors each trip;- Age range of participants;- Project dates and duration of trips;- Locations of trips; and- Total dollar value. <p>Note: Canada reserves the right to contact the client using the contact information</p>	Y / N	

No.	Mandatory Specification	Comply (Y/N)	Provide Page # and or comments
	provided in order to confirm the information submitted by the Bidder.		
2.	<p>Instructor Requirements:</p> <p>All instructors must have Vulnerable Sector Screening (working with youth aged 12-18 years), Police Records Check and be familiar with DND publication Adventure Training Safety Orders (A-CR-CCP-951/PT-002)</p> <p>All instructors must have experience and qualifications from a recognized organization in mountain biking or outdoor guiding. Those that are not certified may be considered pending experience. Recognized organizations include CANBIKE, Association of Canadian Mountain Guides, International Mountain Bike Guides Association of Canada, Professional Mountain Bike Instructor Association, or a post-secondary institution.</p> <p>All instructors for activities (Section 10), Activities A-G) must be as a minimum (proof of compliance must be provided prior to contract award:</p> <ul style="list-style-type: none"> - Currently and validly certified in Standard First Aid; - Experienced in instructing groups, preferably youth groups; - Experienced in the field repair and maintenance of bikes; and - Skilled in biking to an intermediate level. <p>Instructors for the five-day trips (Section 10, Activities H-J) must be as a minimum (proof of compliance must be provided prior to contract award:</p> <ul style="list-style-type: none"> - Currently and validly certified in Wilderness First Responder; - Thoroughly familiar with the route; 	Y / N	

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No.	Mandatory Specification	Comply (Y/N)	Provide Page # and or comments
	<ul style="list-style-type: none">- Experienced in acting as a leader or assistant leader on similar routes;- Experienced in the field repair and maintenance of bikes; and- Skilled in biking to an intermediate level <p>All certifications must be available prior to contract award</p>		



National
Defence

Défense
nationale

A-CR-CCP-951/PT-002



ROYAL CANADIAN ARMY CADETS

ADVENTURE TRAINING SAFETY STANDARDS

(ENGLISH)

Cette publication est disponible en français sous le numéro A-CR-CCP-951/PT-003.

Issued on Authority of the Chief of the Defence Staff

Canada



National Défense
Defence nationale

A-CR-CCP-951/PT-002

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**OPI: D Cdts 3 – Senior Staff Officer Youth Programs
Development**

**2005-11-17
Ch 2 – 2008-11-04**

Canada

LIST OF EFFECTIVE PAGES

Insert latest changed pages and dispose of superseded pages in accordance with applicable orders.

NOTE

The portion of the text affected by the latest change is indicated by a black vertical line in the margin of the page. Changes to illustrations are indicated by miniature pointing hands or black vertical lines.

Dates of issue for original and changed pages are:

Original	0	2005-11-17	Ch	3
Ch	1	2007-11-22	Ch	4
Ch	2	2008-11-04	Ch	5

Zero in Change No. column indicates an original page. Total number of pages in this publication is 298 consisting of the following:

Page No.	Change No.	Page No.	Change No.
Title	2	4-9/4-10	0
A to B/C	2	4A-1 to 4A-3/4A-4	0
i/ii to xii	2	4B-1 to 4B-3/4B-4	0
1-1 to 1-3/1-4	2	4C-1/4C-2	0
1A-1 to 1A-2	0	5-1 to 5-10	2
1B-1 to 1B-2	0	5-11 to 5-13	0
1C-1/1C-2	0	5-14 to 5-25/5-26	2
2-1 to 2-4	2	5A-1 to 5A-4	0
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Contact Officer: D Cdts 3-2-5 – Staff Officer Army Cadet Program Development

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FOREWORD

1. A-CR-CCP-951/PT-002, Royal Canadian Army Cadets – Adventure Training Safety Standards, is issued on the authority of the Chief of the Defence Staff and it is to be first implemented during the year of 2003.
2. This publication was developed by Director of Program Development (D Cdts 3) in accordance with Canadian Forces regulations and related civilian agencies.
3. This publication is the authority for the conduct, supervision, support and qualification requirements of related Royal Canadian Army Cadets (RCAC) adventure training activity.
4. All other activities wanting to be practiced and not appearing in this publication will have to obtain the Detachment/Region or the Directorate of Cadets authorization.
5. Suggestions for changes will be forwarded to National Defence Headquarters (NDHQ), Attention: D Cdts 3-2-5 – Staff Officer Army Cadet Program Development or by Email to arm.dev@cadets.gc.ca. ■

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CHAPTER 1

INTRODUCTION

DESCRIPTION

1. This document results from the efforts of the various Army Cadet Program Review Boards convened since 1998. The nature and sequence of these activities were developed IAW CATO 40-01, Army Cadet Program Outline, and in compliance with the development and safety standards of the Canadian Forces and national/international agencies, according to their area of specialization.

AIM

2. The aim of this publication is to provide comprehensive industry based safety standards to guide and govern the training, resource requirements, progression conduct and structure of adventure training activities conducted by Region Cadet Support Units (RCSUs) and Cadet Corps.

USING THIS PUBLICATION

3. The level at which the activities described in this publication are conducted is immaterial; the fact remains that the people in charge are **required** to abide by the safety standards and guidelines governing each of these activities.

4. Although camping activities are not addressed in this document, they form an integral part of all the other activities described. For information on the general skills and knowledge required for camping activities, refer to PO X21 of the Star Level Program. For reasons relating to safety and supervision, it is recommended that participants possess basic knowledge and skills relating to “adventure training” before combining this element with any other activity. Moreover, supervisors at all levels shall stress the importance of practicing minimum impact camping and of leaving no trace of one’s passage. Remember that you are a guest in someone else’s house! Respect private property, homes and the need for peace and quiet of other site users.

AUTHORIZATION

5. As stipulated at CATO 40-01, Army Cadet Program Outline, advance authorization must be obtained from the proper authorities.

SAFETY

6. **Instructor-Cadet Ratio.** CATO 13-12, Supervision of Cadets, outlines the minimum supervision ratio for cadets participating in training. However, in the interest of safety, adventure activities will often require a greater ratio of instructors (X) to cadets (Y), expressed throughout this publication as X:Y. These published ratios govern the cadets taking part in the specified activity, e.g. in the case of climbing, the ratio of 1:2 includes only those cadets actually participating in the climb, the supervision ratio in CATO 13-12 shall govern any cadets who may be waiting in a group for their turn to climb. When a person (CF member, civilian, or cadet) has suitable requisite training offered by an internationally, nationally, or provincially recognized civilian service provider and/or suitable experience, the RCSU CO may, following a review by the Region Expedition Officer of the individuals skills and qualifications, appoint the person as an instructor for the purposes of meeting the supervision ratios specified in this publication.

7. **Inherent Risks of Adventure Activities. The concept of risk is essential in the conduct of adventure activities.** First of all, there must be awareness that the failure to conduct a risk assessment constitutes pure and simple irresponsibility. It should also be understood, however, that if there is no risk or danger then the activity can no longer be termed an adventure activity. Consequently, our task is to strike a

balance between risk levels and safety levels for a given activity. As noted earlier, an activity will be deemed dangerous if there is a failure to implement all appropriate procedures to mitigate the risk. We are referring here to sound individual judgement, proper mental and physical preparation, requisite skills and qualifications, planning, and the use of good equipment. Although we cannot guarantee that no accidents will occur, through a proper assessment of the risks involved we can certainly reduce the frequency, impact and seriousness of any injuries or accidents that may occur.

8. We should point out here that the Canadian Forces practice risk assessment and management and in partnership with the Army Cadet League of Canada provide protection insurance covering individuals involved in all **authorized** activities.

9. Our safety standards were developed in harmony with the policies of civilian and military agencies. It is imperative, therefore, that these safety standards be respected and applied; otherwise, the Canadian Forces and the Army Cadet League of Canada will be unable to assume and accept responsibility should an accident/incident occur. Such a case would constitute negligence and the individual alone would be accountable.

9A. **Accident Investigation and Reporting.** In the case of an accident while undertaking adventure training, accident and investigation procedures shall be followed in accordance with A-GG-040-001/AG-001, DND General Safety Program, Volume 1.

10. **Introduction of the Activity and Briefing of Participants.** Operation Orders detail the overall structure, objectives, numbers of participants, personnel, requisite equipment, start and finish and site of the activity, as well as the planning schedule up to submission of the end-of-activity report. Once this is complete and the personnel have been selected, the following elements must be addressed:

- a. information session for participants;
- b. pre-training (where necessary);
- c. personnel;
- d. equipment check;
- e. check and assessment of facilities;
- f. reservation of site(s) (signing of contract or letter of understanding);
- g. review of policies and procedures;
- h. emergency plan;
- i. prerequisites (medical, age, physical fitness, qualifications, experiences, etc.);
- j. medical statement form (Annex A); and
- k. consent and risk awareness form (Annex B).

11. Of course, the parents must be informed as early as possible in the process, particularly if the activity falls outside the cadet corps' established schedule. Once the additional training (where required) and preparations are complete, the activity leader should reiterate the goals of the activity and the details surrounding the prerequisites.

12. On the day of the activity and at the start of each session, the participants should be briefed on the structure of the activity and the relevant safety procedures. On completion of the briefing, we recommend that the following elements be covered before commencing the activity itself:

- a. list the learning objectives;
- b. note the objectives to be achieved;

- c. stimulate interest and discussion by using metaphors applicable either to the activity itself or its objectives;
- d. teach/outline the necessary skills;
- e. warm up; and
- f. stage some activities to encourage teamwork.

13. Once the activity is complete, the activity leader should seek feedback from the participants. Through discussion, the leader should highlight the key aspects of the activity. Firstly, the leader should ensure that the participants are capable of defining the various elements learned during the activity and, secondly, the leader should identify means by which their new skills might be applied to other situations in their daily lives.

14. **Information for Parents.** Joining instructions (Annex C) and authorization forms should be provided for every activity involving cadet participation. The instructions should cover the following points:

- a. description of activity;
- b. contents and inherent risks of the activity;
- c. contact for parents;
- d. contacting the parents;
- e. medical statement form (Annex A); and
- f. consent and risk awareness form (Annex B).

POST-ACTIVITY

15. Once the activity has been completed, every aspect should be reviewed. This will involve a re-assessment of the ratio, the number of participants and their prerequisites, the duration and timing of the activity, the number of instructors and their qualifications, the equipment, the site, the facilities, the safety procedures (emergency plan), the preliminary planning, etc. Each element should therefore undergo a separate review aimed at improving the activity on the next occasion. A logbook can be kept for both instructors and participants and used to compile information concerning the activity and the learning/experiences of the participants.

16. Before placing the equipment in storage, an inspection and evaluation should be carried out to ensure the maintenance, repair or replacement of obsolete/damaged equipment. Care should also be taken to ensure that the equipment storage area is adequate and capable of preventing damage to the equipment until the next time it is used.

ANNEX A
MEDICAL INFORMATION

Section A – Medical Condition		
Yes	No	
		1. Has your doctor ever told you that you have a heart problem and that you should only take part in physical activities prescribed and approved by a medical doctor?
		2. Do you ever experience chest pain while engaging in physical activity?
		3. In the past month, have you ever experienced chest pain at times when not engaging in a physical activity?
		4. Do you ever experience balance problems associated with dizziness or have you ever lost consciousness?
		5. Do you have bone or joint problems that may be aggravated by a change in your level of participation in a physical activity?
		6. Are you currently being prescribed medication to control your blood pressure or a heart problem (e.g. diuretics)?
		7. Are you aware of any other reasons why you should not engage in physical activity?
Section B – Are You Suffering From or Have You Ever Suffered From		
Yes	No	
		Epilepsy
		Hemophilia
		Psychiatric problems
		Serious allergies (e.g. nuts, peanuts, stinging insects, hypersensitivity to cold)
		Asthma
		Diabetes
Section C – General		
Yes	No	
		Are you pregnant?
		Have you undergone surgery during the past 10 months?
		Are you currently taking any medication(s)? If so, please indicate:
		Do you have any dietary restrictions? If so, please indicate:
		Do you have any physical restrictions that would affect your participation in the entirety of adventure training? If so, please indicate:
Section D – Participant Statement		
Please read carefully and initial each paragraph.		Initials
I hereby declare that I am not under the influence of alcohol or any drug, and I formally pledge to refrain from using drugs or alcohol during the activity.		
I hereby declare that I have read, understood and agreed to the provisions in this document and that all the information contained herein is true.		
Signature _____ Date _____ Year _____		
Name of Parent or Tutor _____ Signature of Parent or Tutor _____ (Required for participant under 18 years of age)		

Figure 1A-1 Medical Information Form

ANNEX B
CONSENT TO ADVENTURE TRAINING

Cadet ID Information		
Name of Cadet:	First Name:	
Telephone No.:	Emergency Telephone No.:	
Provincial Health Insurance No.:	Expiry Date:	
Name of Activity:	Activity Leader:	
Location of Activity:	Dates of Activity:	
Purpose of Activity:		
Details of Activity:		
Parental Consent (please read carefully)		
Name of Parent:	First Name:	
<p>I consent to the participation of my son/daughter or pupil in the requested cadet activity (activities). I am aware that the activity (activities) in which my son/daughter or pupil plans to participate is (are) dangerous and may result in a loss of limbs, injuries and/or trauma.</p> <p>I hereby declare that I have understood each of the provisions of this agreement.</p> <p>Parent Signature _____ Date _____</p>		
Participant Statement (please read carefully and initial each paragraph)		
	Initials	
The activity leader has explained, illustrated and demonstrated to me to my satisfaction the nature, risks and dangers of this activity and I accept these risks.		
I am aware that the activity in which I plan to participate is dangerous and may result in the loss of limbs, injury and/or trauma.		
I pledge to abide by all the directives and instructions issued by the activity leader, his/her guides, monitors or other officials.		
<p>I hereby declare that I have understood each of the provisions of this agreement.</p> <p>Cadet Signature _____ Date _____</p>		
<p>Commander Signature _____ Date _____</p> <p>Note: Before signing, the commander must ensure that the expedition has been well planned and that the leader possesses the necessary qualifications.</p>		

Figure 1B-1 Consent to Adventure Training Form

ANNEX C

JOINING INSTRUCTIONS

1. The following elements should be covered:
 - a. Name of activity.
 - b. Description of activity.
 - c. Purpose of activity.
 - d. Place and time of departure.
 - e. Place and time of arrival.
 - f. Location of activity.
 - g. Dates of activity.
 - h. Activity leader.
 - i. Number of participants.
 - j. Equipment required and equipment supplied.
 - k. Transportation.
 - l. Rations.
 - m. Contact telephone number.
 - n. Etc.

CHAPTER 2

PHILOSOPHY AND APPLICATION CONCEPTS – EXPERIENTIAL EDUCATION

GENERAL

1. Experiential education has been identified as a principal tool to be used in the accomplishment of both RCAC training and adventure training. Experiential learning is “learning by doing” in opposition to learning theory in the classroom. The Association of Experiential Education (AEE) based in Boulder, Colorado defines experiential education as “a process through which a learner constructs knowledge, skill, and value from direct experience”. This does not mean that experiential learning cannot take place in the classroom, but learning experiences are designed to be experiential wherever they take place.

DEFINITIONS

1A. **Experiential Learning (Itin, 1999).** The change in an individual that results from reflection on a direct experience and results in new abstractions and applications. Experiential learning rests within the student and does not necessarily require a teacher.

1B. **Experiential Education (Itin, 1999).** A holistic philosophy, where carefully chosen experiences supported by reflection, critical analysis, and synthesis, are structured to require the learner to take initiative, make decisions, and be accountable for the results, through actively posing questions, investigating, experimenting, being curious, solving problems, assuming responsibility, being creative, constructing meaning, and integrating previously developed knowledge. Learners are engaged intellectually, emotionally, socially, politically, spiritually, and physically in an uncertain environment where the learner may experience success, failure, adventure, and risk taking. The learning usually involves interaction between learners, learner and educator, and learner and environment. It challenges the learner to explore issues and values, relationship, diversity, inclusion, and community. The educator's primary roles include selecting suitable experiences, posing problems, setting boundaries, supporting learners, insuring physical and emotional safety, facilitating the learning process, guiding reflection, and providing the necessary information. The results of the learning form the basis of future experience and learning.

CONCEPTS

2. Experiential learning was initially regarded as lacking a solid base of theory, relying on the perception of its benefits instead of empirical research for popularity. Since the 1960's, education and psychology professionals have dedicated considerable resources to document and develop experiential education principles so that it could meet stringent structure and validation requirements. Since the early 1980's, school boards in the United States and personal development organization such as Outward Bounds International, Project Adventure, National Outdoor Leadership School and the Wilderness Education Association have used experiential education to the point that it is now the preferred method of delivering outdoor education.

3. Experiential education's foundation is based in Dewey's view that learning is an active process and the classroom is a complex interactive environment (1929 and 1938); Hahn's Outward Bounds principles (1934); Piaget's Theory of Cognitive Development (1951), Maslow's Hierarchy of Needs (1954); Bruner's Discovery Learning (1960); Gardner's Multiple Intelligence (1983); Kovalik's (1997) Integrated Thematic Instruction and brain research. In a more modern sense, there are hundreds of authors presently publishing information on experiential education. The Journal of Experiential Education is published three times per year by AEE. The following authors have made significant contributions to experiential education and have developed practical tools to enhance education delivery.

4. The experiential learning cycle was developed to help visualize the necessary steps for it's application (Kolb, mid 1980's):

- a. cadets **experience** a specific activity;
- b. the experience leads to **reflection**;
- c. results of the reflection lead the cadet to make **generalizations**; and
- d. generalizations are **applied** in future experiences.

5. Joplin (1981) identified eight characteristics to experiential education:

- a. the experience is cadet based;
- b. the environment is of a personal nature;
- c. the learning is process and product oriented;
- d. the evaluation exists both for internal and external reasons;
- e. the understanding of the learned material is to be holistic and analytical;
- f. the learning is organized around experience;
- g. the knowledge is acquired by how the learner perceives it instead of being solely theory based; and
- h. the learning is individually based.

6. In order to help instructors design learning that is experiential, Joplin (1981) developed a five-stage model that describes an educational experience. The first stage of the model is FOCUS, where the subject is defined, attention is grabbed, expectations are explained and safety parameters are set. The ACTION stage is a stressful or challenging experience that forces the learner to act or react. The action may be physical, mental, emotional or spiritual. The experience must be active, usually when educators think of experiential education, they think in terms of ropes courses, hiking or paddling expedition and team-building games. Reading an article for example is not mentally active unless the information from the reading must be used for something else, reading itself does not usually lead to a stressful or challenging experience. SUPPORT and FEEDBACK are the third and fourth stage of experiential education. In these stages, the learner is encouraged to continue the quest, persevere, and receive feedback on his or her performance. Support and feedback allow the learner to assess the situation as it evolves and develops. The last stage of an experiential learning opportunity is DEBRIEF. At this stage, the learning is recognized, organized and articulated. The debrief also allows for an evaluation of the learning and a synthesis of the experience so the participants learn from their experience. Often, a debrief leads to FOCUS for the next activity.

7. Experiential education is appropriate for use in the delivery of the Army Cadet Program since it inherently fosters many of the RCAC training objectives. These training objectives are activity based and include a significant component in the development of the “self-concepts” and personal growth (i.e. produce leaders, develop instructional and leadership skills, develop self-discipline, protect and preserve the environment, participate in community activities, develop a high level of physical fitness and promote sensible community living habits).

8. In the pursuit of the aim “to encouraging personal growth”, there must be a certain amount of learning (or transfer) that needs to take place; from the physically and mentally challenging training activities to an internalization of lessons learned. Without specific learning goals, the challenging activities are fun but may not contribute to the many other objectives of the RCAC training program IAW CATO 40-01. The training objectives of the RCAC are to learn skills or knowledge. Learning does not preclude the opportunity to have fun but it enhances it to meet the other important training objectives.

9. Gass (1995) explains that one of the ways of looking at learning especially using the experiential approach is “how will it serve the person in the future”. It’s easy to see how learning a specific skill will lead to a better performance during a similar activity in the future but how will help a person grow?

10. Adventure activities lend themselves to experiential learning where participants learn by doing; e.g. abseilers can learn to conquer their own fears and to trust safety equipment/procedures during abseiling. But what else can they learn from the activity? You can learn the skill of abseiling itself so that it is done better or more efficient the next time, hence it will serve the person in the future but what about the training objectives of the RCAC? This is where a facilitation approach to leadership can be used to help participants transfer the experience into a learning opportunity of broader scope. It may not be obvious to teenagers how conquering their own fear of heights develops self-discipline, furthermore, it may not be obvious to see how self-discipline developed on a rock face transfers to self-discipline as a youth leader at the cadet corps.

11. In addition, experiences can be used to sensitize people to certain issues, in the example above, the environment in which abseiling takes place can be used to develop an appreciation for the natural wilderness of Canada. By exposing Canadian Cadet Movement (CCM) members to the natural beauty of the environment, they can become personally motivated to protect and preserve the environment. Often, the facilitator role is just one of the leadership roles in the development of cadets. Facilitation often takes place in informal teaching. This is not to say that its not planned or organized. In order to be most effective, every learning opportunity should be planned, presented and confirmed. Facilitation of learning in adventure training is often not structured in a basic lesson plan such as the ones commonly used in the military environment.

12. One fundamental aspects of experiential education is the transfer of learning (refer to paragraphs 5.e., g. and h.). Bruner (1960) theorized on the transfer of learning and his conclusions are seen in the first example where doing one skill will teach the person to do it better the next time, this is called specific transfer (habits and skills). Accordingly, non-specific transfer applies for example where self-confidence developed while abseiling carries over to self-confidence in dealing with junior cadets.

13. Bacon (1986) describes one method of non-specific transfer with his theory of metaphoric transfer as it applies to concepts of "similar principles". In the abseiling example, the participant can use the skill of abseiling as a metaphor for learning other things. In this case: The "abseil" rope can be the cadet's own personality, her own direction, her likes and dislikes; the belay rope can represents her circle of friends, present for support in case there is a problem in the abseil rope; the harness can be her family, attaching the cadet to her personality and her circle of friends. The cadet can then use this metaphor to learn that her surroundings will support her if needed but she remains the driving force behind the movement, she must walk off the cliff herself. This metaphor could be used to help a teenager make decisions about a specific direction in life, choosing a progression in school or at cadets.

14. Canoeing can be used for another example of metaphoric transfer. Cadets that learn to paddle canoes know that each person must put enough effort to do their own share of the work and that paddling in unison is more effective than paddling at an independent rhythm from your partner. These two basic principles can apply to other situations; e.g. Non-Commissioned Officers (NCOs) at cadet corps need to do their own share of the work (get the recruits ready for parade, fill out the parade states, prepare classrooms) and the work they do is more fruitful when coordinated with everything else going on that evening (NCO must get the platoons ready for parade because the Company Sergeant-Major (CSM) is busy preparing a lesson, but when the CSM is ready, the parade can take place without delays).

METHODS

15. So how do we help a person learn; develop skills and knowledge that will enhance their performance in the future, both specific and non-specific transfers? Many methods of transferring learning exist and no one facilitator is expected to know them all. Good leaders however learn a few methods in order to help them achieve their goals – which often involves "influencing human behaviour". Gass (1995) list the following techniques used to facilitate the transfer of learning in adventure activities:

- a. Design conditions for transfer before the course or learning activity begins:
 - (1) identify group or class goals;
 - (2) have the participants set personal goals; and
 - (3) write learning objectives.
- b. Create elements in the learning environment similar to those elements in other environment or situations (e.g. metaphors).
- c. Have the cadet practice the transfer of learning while still in the program, don't expect participants to learn at the end of an activity and apply their new skill or knowledge in a difficult situation.
- d. Use natural consequences of learning in order to reinforce concepts.
- e. Provide an opportunity for the participants to internalize their own learning:
 - (1) ask questions that will make the cadets assess their own reactions and feeling about the activity;
 - (2) use reviewing or debriefing methods to guide the cadets to ask themselves those questions;
 - (3) include past successful candidates in the adventure activity or program;

(4) include significant others in the learning process (peers); and

(5) once cadets can function in this environment, increase their responsibility for learning.

- f. Provide follow-up experiences that aid in the application of transfer (progression of training, use last year's successful candidates to help develop this year's class; use debriefing and reflective tools such as logbooks).

16. So why are cadets participating in adventure activities? To learn, advance, develop, to challenge themselves, to grow... to precipitate a change... The AEE (1996) cites its organizational belief that "Changes in behaviour, attitudes and perceptions as a result of a life experience; may not always be automatic. In order for experiential learning to take place, there must be synthesis and reflection". These processes will enhance the internalization of change for the cadets and will result in some change of behaviour – sometimes with varying degrees of success. Some examples of synthesis and reflection methods are logbooks and journals; debriefs and reviews. Those tools are discussed below.

DEBRIEFING METHOD

17. **Debriefing the Experience.** Our role in using the debriefing method is to guide participants through a process of introspection that will help them discover by themselves what they have learned. Our job is to lead them through this learning process by asking the proper questions and avoiding any reference to what we might think they have learned. Such an approach will encourage participants to share their personal experiences.

18. **Concept.** The concept is to lead the participants, through a series of steps, to an understanding of how beneficial this learning and experience can be to their daily lives. Even before starting the actual debriefing, the leaders should take written or mental notes describing the reactions of the participants, their behaviour in the company of their peers and the incidents which occurred during the activity. These observations should be linked to the established objectives and may refer specifically to teamwork, communication, problem-solving, initiative, self-confidence, etc. Some authors (Priest and Gass) refer to the funnel approach when advocating the use of real experiences to encourage changes in behaviour. The sequence proposed by Greenaway underscores the use of actual experience to make participants aware of the knowledge and learning they have acquired in preparation for another experience.

19. The main idea that emerges from the two works cited at the reference concerns the importance of the participants' actual experiences and their newly acquired understanding that acquired knowledge and learning can bring about changes in behaviour.

20. **Stages.** The first stage involves conducting an overview of the activity, including the established objectives, the needs or interests of the participants and any problems/incidents that might have arisen. Of course, we ask the participants to review the activity for us and give us an assessment, i.e. a performance rating. This stage can be summed up as follows: what happened?

21. The second stage involves asking the participants to comment on what they went through and how they handled their experiences. Participants should refer to specific moments when the activity went well or did not go well. This stage can be summed up as follows: how do you feel about your experiences?

22. The third stage focuses more on their emotions and the origins of those emotions. Thus, we ask the participants to detach themselves emotionally from what they experienced and analyze their conduct. They should identify the particular elements or situation that influenced their behaviour/reactions. Why did they react in one way rather than another? What impact did their behaviour/reaction have on the group? It is essential that the individuals focus on situations and behaviours rather than on the individuals themselves, since behaviour is a means used by a person to adapt to a situation. The question being asked here is: what emotions did you feel?

23. During the fourth stage, the participants will be asked to identify what they themselves have learned and how it can be related to their everyday lives. To facilitate this transfer, it is recommended that activity leaders use metaphors and analogies. We can sum up this step by asking: what links or parallels with your daily lives can you identify?

24. The final stage involves asking the participants how they would conduct the activity differently and why. Or maybe asking how they might react differently to a particular situation in their daily lives and why.

25. To ensure that this learning and transfer process proceeds smoothly, we recommend that the participants and activity leaders keep a logbook. The benefits and procedures associated with this logbook are described below.

PERSONAL REFLECTION

26. An activity logbook offers a special opportunity for learning. In a logbook or journal, the participant states certain facts about their experience, performance, expectations and lessons learned. The process of organizing one's thought, or "dumping" information and feelings about certain activities can lead to reflection and discussions. For the purpose of this instruction, logbooks will be factual and detailed. Journals will be similar but will also include personal reflections as the result of an activity. Logbooks and journals may be reviewed by the appropriate staff to monitor the development of the cadets under their charge and assess activities. In this situation, logbooks and journals can be used to communicate between participants and leaders especially if the cadets feel uncomfortable asking certain questions out loud.

27. Usually, the more complete the journal, the more useful it is to the cadet and the staff. The following items may be included in logbooks and journals:

- a. group contracts;
- b. list of expectations;
- c. short-term and long-term goals;
- d. personal and group goals;
- e. topic of the day/week or activity;
- f. personal feelings;
- g. self-assessment;
- h. list of resources;
- i. mentors and how they influence the cadet;
- j. successful personal habits in other people;
- k. stories, pictures and songs;
- l. lessons learned; and
- m. notes to self and to reviewers.

28. As a side effect of the learning process, logbooks and journals become invaluable assets in reliving memories weeks, months and years after the event. There are different types of logbooks, listed below are a few examples:

- a. personal journals/logbook;
- b. section/platoon or team logbooks;
- c. logbook review/sharing logbooks;
- d. activity leader logbook; and
- e. safety/usage logbook (e.g. ropes log, range log).

ANNEX A

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CHAPTER 3

CANOEING – KAYAKING – VOYAGEUR CANOEING – SEA KAYAKING

GENERAL

1. This chapter is written in five sections. The general portion applies to the four paddling activities identified in the subject. The subsequent sections contain details specific to each activity.

DESCRIPTION OF ACTIVITY

2. The paddling sports come from the locomotion generated by paddlers in a small watercraft. Many different types of crafts exist and will be discussed in the instruction; canoes, and kayaks are in the same family of transportation/leisure vehicles and activity origin. Small watercraft such as canoes differ by their shapes and purposes. A very different shape and construction is used for a long distance travelling voyageur canoe compared to an Olympic sprint canoe or a sea going kayaking to a small very manoeuvrable kayak made for moving water.

3. In this order, the term “paddlers” refers to all operators of canoes, kayaks, sea kayaks and voyageur canoes. When specific directives apply to only one or some of the paddling activities, they will be identified. Rafting, as an adventure activity will be covered separately. When sea kayaking is not specifically identified, the term “kayak” or “kayaking” refers to the smaller, plastic kayak usually used in moving water, rivers, and creeks.

AIM OF ACTIVITY

4. The aim of paddling activities such as canoe/kayak training is to expose CCM members to an activity of great cultural significance to Canadians. Water travel in Canada is part of our heritage. The CCM offers an exciting way for cadets to explore Canada’s waterways through the promotion of safe canoeing and environmentally sensitive paddling. The discovery of Canadian geography can be used to challenge cadets and expose them to environments/situations with which they may not be familiar. Paddling instruction and trips can offer an opportunity to appreciate the Canadian wilderness and for cadets to learn from their experience. Paddling does not by itself build on other skills already learned in the CCM, although cadets who have experienced backpacking and expeditions using other modes of travel will have a better understanding of the principles behind on-water trips. Each paddling activity develops new specific technical skills. Paddling skills can easily be combined with other adventure activities, in addition to map and compass, citizenship, leadership development and instructional technique. Moreover, CCM members will learn water safety and safe tripping skills.

CANADIAN REGULATIONS CONCERNING SPECIFIC ACTIVITIES

5. The Canadian Coast Guard regulates the use of small watercraft such as canoes in Canada’s waters. The Small Vessel Regulations describe the minimum safety equipment required for all recreational vessels, including canoes, kayaks and voyageur canoes. Voyageur canoes depending on their length come under different categories of craft than ordinary canoes and kayaks. In addition, the Collision Regulations apply to every vessel operating in navigable waters. They dictate right-of-way rules and require the operator of every vessel to maintain a constant look-out. Paddlers are required to use every available means to determine whether there is any risk of collision with another vessel. Although bumping commonly occurs during training in small watercraft, collision in this case means a collision that results in harm/destabilization of paddler(s) and/or damage to craft.

6. The Canadian Fisheries and Environment Ministry may restrict access to certain waterways; the CCM will abide those regulations.

MILITARY REGULATIONS

7. The CF regulates Adventure Training in DAOD 5031-10 and Aquatic and Water Safety in CFAO 50-04.

CCM SAFETY REGULATIONS

8. Many aspects of paddling safety specific to the CCM are covered in A-CR-CCP-030/PT-001, Water Safety Orders. In case of disagreeing instructions between A-CR-CCP-030/PT-001, DAOD 5031-10 and CFAO 50-04, Aquatic and Water Safety, A-CR-CCP-030/PT-001 shall be the primary source of correct information for watercraft safety in the CCM.

AUTHORITY LEVEL

9. Flat water/moving water trips and day instruction require prior approval by Regional Cadet Support Units Detachments Commander's. Wilderness trips, big water paddling and group sizes larger than 20 members require Regional Cadet Support Unit Commanding Officer's approval.

10. Paddling expeditions that involve groups larger than 50 members should be avoided since they can severely impact the environment in which they are conducted. However such expedition and multi-regional initiatives, or in extreme conditions such as polar regions or UNESCO World Heritage Sites require National authority.

GOVERNING BODIES

11. Governing bodies are:

- a. Paddle Canada
P.O. Box 398
446 Main St West
Merrickville, ON K0G 1N0
Telephone: 613-269-2910
Fax: 613-269-2908
Toll Free: 1-888-252-6292
- b. Canadian Canoe Association; the professional body of top level paddling athletes responsible for national coaching and athlete carding; National Canoe team for world competitions and Olympics (www.canoekayak.ca).
- c. International Canoe Association.
- d. American Canoe Association
7432 Alban Station Blvd, Suite B-232
Springfield VA 22150
Telephone: 703-451-0141
Website: www.acanet.org
- e. Canadian Red Cross Water Safety Service.
- f. White Water Canada.
- g. Rescue 3 International.
- h. National Life Saving Society.
- i. Parks Canada, National Rivers Project.
- j. Paddling links at: canoe.info-pages.com/dbase-new/club-c.html.

12. Provincial and regional organization are:
- a. Provincial affiliates of Paddle Canada (Annex A).
 - b. Ontario Marathon Canoe Association.
 - c. Fédération québécoise de canot-kayak camping
1415 Jarry Est
Montréal, QC H2E 2Z7

EQUIPMENT REQUIREMENTS

13. A-CR-CCP-030/PT-001, Water Safety Orders, outlines the requisite safety equipment to be provided in each canoe/kayak.

- a. D E L E T E D
- b. D E L E T E D
- c. D E L E T E D
- d. D E L E T E D
- e. D E L E T E D
- f. D E L E T E D

14. IAW A-CR-CCP-030/PT-001, Water Safety Orders, Annexes D and E, certain articles of equipment and clothing are appropriate, recommended or necessary for undergoing paddling training. The following clothing and equipment is added as a requirement to conduct paddling training in the CCM:

a. **Equipment**

- (1) **Watercraft.** All crafts used by cadets for paddling sports will be inherently buoyant. If buoyancy can only be established with air cells, they must be checked for effective performance regularly.
- (2) **Helmets.** A regionally approved helmet is recommended for wear at all times, but mandatory when operating beyond Class I river conditions or near rock on open water. Personnel undergoing kayak training will usually wear helmets at all times. Helmets must be made of a sturdy shell and cushion lining with many water exit holes (vented) and a solid chinstrap. The helmet must be worn secured to the head, not swivelling side to side or back and forth, it must protect the frontal lobe from impact and the cervical spine from back swing. Some model of specific paddling helmets such as "Wildwater" and "Cascade" may also be utilized as long as they are fitted properly. Ear guards are not required but recommended in moving water above Class II.
- (3) **Paddles.** Not every canoe/kayak training facility has the financial ability to purchase and maintain modern aluminum/plastic or graphite composite paddles. If relatively inexpensive wooden paddles must be used, they should be in good condition, and properly varnished. They should also be readily available in large quantities since they are easily broken.

- (4) **First Aid Kit.** A waterproof first aid kit of appropriate size and type for the paddling group and the activities is expected; it must be readily available during training and tripping.
- (5) **Repair Kit.** An appropriate repair kit for the number and types of craft must be taken on trips and should be available during training.

b. Clothing

- (1) **Layers.** Should be warm and wind/water resistant according to weather.
- (2) **Shoes.** Must be worn at all times. Soft-sole lightweight running shoes or wet-suit booties with good soles are preferable especially if portages are expected. Sturdy sports sandals with solid buckles are acceptable for flat water paddling activities or when difficult portages are not expected. Loose Velcro attachments tend to let go once wet, and therefore are not acceptable.
- (3) **PFDs.** Must always be worn and worn as the last layer. An inspection must take place to ensure that the clothing required according to weather and temperature does not interfere with the buoyancy of the participants. Wet and dry suits offer good performance and enhance buoyancy in cold weather/water conditions. Efforts should be made to make this equipment available if necessary.

15. Inappropriate clothing:

- a. big rubber boots “farmer style” and combat boots;
- b. flip-flops, clog type footwear or loose shoes/sandals; and
- c. restrictive clothing or clothing that will become restrictive once submerged under water, e.g. many layers of wool, jeans or clothing with elastics that will retain water.

RECOMMENDED EQUIPMENT LIST

16. The following list of equipment should be made available to cadets undergoing paddling training:

- a. knee pads;
- b. wide brim hat;
- c. gloves or pogies;
- d. appropriate weather clothes, i.e. wind and water protection; and
- e. wet or dry suits are strongly recommended for paddling in conditions of water temperature colder than 10°C.

SAFETY BOAT REQUIREMENTS

17. Safety boat requirements are identified in A-CR-CCP-030/PT-001, Water Safety Orders.

■ RATION REQUIREMENTS

18. Type. While canoe/kayak training or tripping, no special nutrition is required with the exception of fluids. Paddling can be a very physically demanding activity and usually take place with no protection from the sun and wind. Plenty of appropriate fluids (cold or warm) must be available for all paddlers. The type of rations for paddling trips can be varied and flexible. Since paddlers are not usually over concerned with weight, Individual Meal Pack (IMP) offers an easy meal with plenty of nutrition. If fresh rations are used, proper meal planning is necessary especially for trips longer than three days.

19. **Amount.** The energy cost of paddling is similar to that of hiking, the amounts of rations must cover all meals, snacks, quick energy fixes and a safe surplus (usually one meal for a short trip and three meals for a five-day trip). In cold temperatures the energy cost of paddling may be elevated even though the paddlers may feel less appetite. Nutritious, sweet and good tasting foods are necessary to sustain long-distance paddling in cold temperature conditions.

20. **Preparation.** If environmental conditions and fire indexes allow; it is possible for cadets on a paddling trip to cook their food over an open fire; however, direct supervision is required. Usually single burner stove will be used for warming water and cooking food. Similar precautions must be taken while cooking over a stove as cooking over an open fire.

21. **Water.** Water and fluids should be readily available during canoe/kayak training. In most Canadian streams, it is now advisable to either filter or purify drinking water. Chemical water purifying methods such as the use of iodine should be mainly used for cases of survival since they have an adverse effect on the body functions and organs. If clean drinking water is not available from the area, then filters/purifiers must be carried and employed. Water can also be boiled for five minutes to be fit for consumption. This method of water purification burns a lot of fuel and proper provisions will have to be carried. However, boiled water is often associated with unpleasant tasting water, cadets may fail to rehydrate properly.

TRANSPORTATION REQUIREMENTS

22. Paddling day instruction and tripping usually requires the transport of canoe or kayak trailers. Drivers must ensure the proper electrical and tow equipment is available in the vehicle towing the trailer. Drivers should be experienced at driving with a canoe trailer and must also take responsibility for their load. All watercraft tie-downs (straps) must be double checked by the driver prior to departure.

23. If trailers are left unattended during training or tripping, proper security arrangements must be made to ensure the trailer will not be stolen or tampered with. Special permissions may be required to leave trailers and vehicles overnight.

24. Safety vehicle/evacuation means may be the same vehicle. If no motorized safety boat is used during a paddling trip, then a safety vehicle must be present at a location closely accessible to the trip leader. The safety vehicle must have appropriate communications means to be in contact with both the trip leader and local authorities. A first aid kit should be available in the safety vehicle at all times.

25. In wilderness settings where no land or water safety vehicle is accessible within three hours, proper arrangements must be made for helicopter evacuations through either search and rescue, the CF, parks services, police/fire department or the national coast guard. If this last option is used, proper communications must be established with the evacuation agency. In this case, communications will usually require satellite phone access and a prepared list of the appropriate phone numbers and emergency procedures.

CADET SKILL LEVEL

26. Army cadets at any level of training may participate in flat water paddling training as part of the Corps Program (Complementary Activity), Optional Program, CSTC Program, or CSTC Extra-curricular Activity. Additionally, Army cadets may participate in paddling instruction as Regionally or Nationally Directed Activities.

27. Cadets must be able to control their craft and demonstrate calm response to instructions while swimming in flat water while wearing a PFD prior to progressing to moving water. Also, cadets must have previous experience on Class II water prior to paddling on Class III rapids (refer to Annex D).

28. Although it is understood that paddling trips are often a learning experience where much instruction and practice will take place during the conduct of the trip, some pre-trip training is required. Inherent risks exist in all types of paddling activities. Although training cannot guarantee the complete safety of cadets on paddling trips, it is necessary to conduct the following minimum training prior to departure:

- a. For cadets who have never participated in paddling training before, it is necessary to conduct at least two days of flat water training prior to departure. The pre-trip training is to including the basic strokes, the swim test in A-CR-CCP-030/PT-001 and the necessary safety skills listed in the progression table (Annex B).
 - b. If cadets have received the two-day introduction before, then a one-day review and practice is adequate.
 - c. If cadets are going to paddle in moving water or open water, then they must receive at least one additional day of training appropriate to the content of the trip. The pre-trip training must include immediate actions upon dumping, basic strokes, swimming, self-rescue and the necessary safety skills as listed in the progression table for the conditions expected on the trip. Also, dangerous conditions such as sweeper/strainer, low head dams and unhappy (frowning) holes or ledges must be discussed as part of pre-trip training if they are expected during the trip.
 - d. If the cadets have paddling trips or moving water trips experience, than one day of practice is adequate prior to departure.
 - e. With the exception of steering skills, canoe training and voyageur canoe training can be used interchangeably during the pre-training phase for the preparation of a trip. Specific stern training must take place to ensure both tandem or solo traditional canoes and small group voyageur canoes are steered properly. Usually an experienced senior cadet or qualified staff will steer voyageur canoes.
29. Although canoe training cannot take the place of kayak (sea or river) pre-training (and vice versa), some similarities exist and skills/knowledge can be carried over. If cadets are participating in a canoe/kayak trip with prior experience using another type of craft, then at least one day of pre-training must take place to familiarize the cadets with the appropriate craft. One day on flat water prior to flat water trips, and an additional day of moving water or open water prior to moving/open water trips using the appropriate type of craft. Prior experience in rafting is not sufficient since there are usually very few steering skills developed during such an activity.

PHYSICAL FITNESS

30. There are no physical fitness requirements for paddling in general, especially for familiarization and basic training. However, both cadets and staff should function at a Bronze level of physical fitness for solo canoeing and wilderness moving water-paddling trips. In some situations, some instructors/leaders may be the best leaders for specific paddling activity without meeting the basic guidelines for physical fitness. In such a case where a great deal of experience, qualification and ability is demonstrated, the physical fitness requirement should be considered a guideline.

PROGRESSION MATRIX

31. Refer to the progression matrix at Annex B.

INSTRUCTOR TO CADET RATIOS

32. The instructor/cadet ratio for canoeing, kayaking and sea kayaking activities are outlined in A-CR-CCP-030/PT-001, Water Safety Orders.

a. D E L E T E D

b. D E L E T E D

33. The instructor/cadet ratio for voyageur canoeing activities shall be as follows:

- a. **Flat Water Training.** An instructor to cadet ratio of 1:15 with a maximum instructor to voyageur canoe ratio of 1:4.

- b. **Tripping.** An instructor to cadet ratio of 1:8; there must be at least a basic level instructor in each voyageur canoe.

MAX AND MIN NUMBER OF PARTICIPANTS

34. Since safety and rescues are often accomplished with teamwork, there must be a minimum number of craft on the water to ensure the safety of all paddlers.

- a. DELETED
- b. DELETED

34A The maximum and minimum number of participants for canoeing, kayaking and sea kayaking activities are outlined in A-CR-CCP-030/PT-001, Water Safety Orders.

34B Where voyageur canoes are in use during training sessions there must be at least two craft on the water at all times. Where voyageur canoes are in use during paddling trips there must be a minimum of three craft of a similar capacity in a group. Safety boat requirements for voyageur canoes are found in Chapter 3, paragraph 71.

MANAGEMENT GUIDELINES

35. **Group Organization and Leadership for Paddling Trips.** An instructor or trip leader cannot also be the only supervisor. Certain conditions, such as moving, big or open water conditions, require a minimum of two safety boats each with a qualified instructor on board.

- a. Responsibilities of the lead craft are:
 - (1) set pace and keep track of group;
 - (2) select route to be followed;
 - (3) scouts rapids; and
 - (4) act as rescue boat if required (coordinate with power safety boat and sweep canoe), carry safety equipment.
- b. Responsibilities of the sweep craft are:
 - (1) keeps group intact; and
 - (2) may act as rescue boat and carry other safety equipment.
- c. Group responsibilities:
 - (1) keep group compact;
 - (2) maintain sufficient spacing to avoid collisions (usually three to five canoe lengths);
 - (3) keep next canoe upstream in sight, signal to front canoe to stop if not;
 - (4) communication between the crafts must carry up and downstream;
 - (5) give the right of way to the downstream craft; and
 - (6) judge difficulty according to experience and training.

36. **Rescues.** Instructors and rescue boat operator must be trained in rescues. All paddlers must be trained in basic rescues so that they may help themselves in an emergency. Also, it is beneficial to develop a team approach to rescues and instruct team rescues to paddling groups.

- a. The priority of rescue must always be:
 - (1) people;

- (2) boats; and
- (3) equipment.
- b. Group responsibilities in a rescue:
 - (1) alert other paddlers of victims in the water;
 - (2) swimmer are to initiate self-rescue, accept assistance;
 - (3) other paddlers are to assist in a rescue to the best of their abilities when it is safe to do so; and
 - (4) all paddlers not involved in the rescue are to pull-over to one side of river when it is safe to do so, walk back upstream if necessary, and wait for further instruction.

37. **Moving Water Safety.** When attempting a set of rapids or training at a set of rapids, it is necessary to establish both upstream and downstream safety. While upstream safety is important for other river users coming into a training area, downstream safety is important for the participants of the training. In addition to the guidelines below, it is recommended to deploy multiple downstream safety alternatives:

- a. Take the time to scout the rapids as necessary.
- b. It may be necessary for safety personnel to walk down below the rapids to provide safety for the first canoe.
- c. It may be necessary to portage a canoe downstream if shore safety is not adequate for the conditions.
- d. The first boat down shall become the safety boat.
- e. It may be necessary to re-arrange paddlers and instructors within the group depending on conditions.
- f. Cadets should be given the option to attempt rapids or to portage around them.

REQUIRED PREPARATORY WORK

38. **Familiarity With Area and Recces.** At least one instructor, usually the trip leader should have training/tripping experience of the area prior to conducting cadet training/tripping. If paddling experience is not available, extensive specific recces of the following points must be done prior to the trip. Written information, the Internet and local knowledge can be used to prepare for the trip. Map recces are a component of the preparation of a trip, but cannot serve as the sole source of information prior to departure:

- a. put-in, take-out points;
- b. emergency evacuation point;
- c. camp sites, primaries and back-ups;
- d. rendez-vous points;
- e. alternate put-in and take-out points;
- f. environmentally sensitive areas; and
- g. identified danger areas, i.e. dams and portages.

39. **Tripping Considerations.** The following points must be taken into consideration when planning a canoe trip:

- a. qualifications of participants;
- b. experience of participants and pre-trip training;
- c. fitness and medical status of all participants;
- d. risk management;
- e. the weather forecast;
- f. appropriate clothing and equipment;
- g. use a safety checklist; and
- h. familiarity and experience with area and conditions.

40. **Big Rivers, Wilderness Areas and Open Water.** Big rivers in flood, isolated wilderness locations and open water such as coastal waterways can often present extreme conditions compared to the ones encountered in other areas. The following points must be addressed in the organization of training and tripping in such conditions:

- a. organization, qualifications, experience and leadership;
- b. communications equipment and plan; it may be necessary to have more than one communication system and to pre-set a radio-check itinerary;
- c. medical emergency plan; it may be necessary to have medical staff on the trip;
- d. evacuation plan; it may be necessary to have a pre-set plan with the local authorities and helicopter access points;
- e. canoe repairs and spare equipment;
- f. extra food and resources;
- g. special licenses and permissions may be necessary in some areas;
- h. specialized equipment and training; and
- i. risk assessment and management must be appropriate for the activity.

NECESSARY PLANNING

41. **Safety Checklist.** A safety checklist is used during the preparation phase of a canoe trip. It should contain the following points. This list is not exclusive and safety checklists should be amended to match the activity planned:

- a. file a trip plan (itinerary, path, expected timings, methods of contact) with local authority, training headquarters or use an on land safety vehicle;
- b. safety equipment required by law;

- c. first aid equipment appropriate to size of group and type of activity;
- d. equipment checked for serviceability;
- e. emergency and evacuation plan, including details on how to contact emergency medical services, and headquarters support;
- f. food and water;
- g. necessary living equipment;
- h. communications equipment and system of signals to be used within the group and to access outside help;
- i. leadership briefing detailing how the trip will be conducted;
- j. river/trip log; and
- k. risk assessment and management.

■ INTENSITY LEVEL OF THE ACTIVITY

42. The intensity of paddling activities is described in the progression matrix for each paddling sport.

ENVIRONMENTAL CONSIDERATIONS

43. Waste management for personal hygiene, food scraps, food containers and human waste for paddling trips and training will follow camping skills of “minimum impact” at minimum and “no trace” in optimum conditions. The impact philosophy of camping and outdoor adventure is established in Chapter 1 and in the RCAC Reference Book.

44. The instructor to cadet ratios will limit group sizes. The maximum allowable visitors at campsites will limit size of tripping groups. Special considerations must be given to environmentally sensitive areas, minimal impact must be imposed onto any given environment. It is better to separate large groups into smaller units and space-out the departure of each smaller group so that no large, intrusive group of paddlers block-up sections of rivers and shore line. Campsites (established or wilderness) should not have to support more than 15 visitors.

WEATHER CONSIDERATIONS

45. Know the weather forecast.

46. It is permissible to paddle in the rain and fog but if it interferes with reasonable visibility or strong winds accompany the rain then it will be necessary for all craft to return to shore, as soon as it is safe to do so. Paddling distance between craft should be diminished during periods of poor visibility, be aware that precipitation may affect water levels and rapid classifications.

47. There shall be no paddling training or tripping while lightning is present, all crafts are to pull over to the closest shore as soon as it is safe to do so.

48. Although extremely cold or hot temperatures do not interfere directly with paddling, training and tripping must be adapted accordingly, paddling gloves and pogies may be necessary. Special consideration should be given to appropriate clothing such as wet and dry suits, and PFD buoyancy according to paragraph 13. Paddling instructors must be trained to recognize signs of heat/cold-related illnesses, treatment and prevention.

49. Although it is possible to paddle in the snow, extreme precautions must be taken to avoid upsets. There must be available resources to rescue and warm up paddlers in the event of an upset in very cold water. Paddling activities will not take place in waters that are partially covered by ice. Special permission from Regional Support Units Commanding Officers or the Directorate of Cadets must be granted for activities that propose to paddle near ice sheets such as the ones seen in polar regions.

LIMITATIONS

50. Paddling is limited by the following conditions. These conditions preclude paddle training/tripping from beginning and also direct its cessation as quickly as safely possible:

- a. Paddle training and tripping is restricted to Class III and lesser moving water for open canoes; closed boats (kayaks) may paddle up to Class IV moving water under close supervision. Extra caution must be taken with paddling activities taking place on large bodies of open water.
- b. Voyageur canoe and sea kayaks are restricted to Class I and lesser moving water, they are mostly flat water and open watercrafts.
- c. Paddling training is restricted to daylight hours. Paddling trips are not restricted by daylight; however caution must be taken while operating in low visibility.
- d. Paddling in reasonable visibility applies to paddling on flat water only. In moving water, no paddling will take place if any factors reduce visibility.
- e. Paddling for rescue/safety purposes after daylight hours is permissible in calm, flat water only.
- f. If it is required to paddle in low-visibility conditions or darkness, then each paddler will wear an activated glow stick on their PFD and each craft will either be equipped with an activated glow stick or navigation lights and one white light. In addition, at least two safety boats must be designated (refer to A-CR-CCP-030/PT-001, Water Training Safety).
- g. All water related training and tripping must cease when in the presence of lightning or ice on the water.
- h. While paddling in wind conditions described in the Wind Chart for Paddlers of the CCM, it may be required to return to shore, as quickly as it is safe to do so.
- i. Paddling groups will not separate unless it was previously arranged.
- j. Paddling will not take place when ice sheets covers any part of the waterway being paddled.
- k. Combinations of wind and cold water/air temperatures must be taken into consideration in deciding to paddle or returning to shore.

RISK ASSESSMENT AND MANAGEMENT

51. Certain inherent risks exist in all paddling activities for example drowning, physical injury, cold illnesses and equipment loss or damage. The safety regulations set for the Canadian public, service members and CCM members have for purpose to reduce the inherent and accidental risks involved with activities developed around water. The following lists some point to be considered in risk assessment and management of paddling activities:

- a. participants: number, age, qualifications, experience;
- b. temperature;
- c. equipment: necessary, required, desired, personal and group;

- d. skill level, qualifications and experience of the leader/instructor; and
- e. support and resources.

DEBRIEF

52. Paddling activities will always include some teamwork but will usually also be a very personal experience. The personal challenges each participant will meet can be discussed in a learning/supportive environment. Group leaders should be especially aware of difficulties some participants may have encountered and use judgment in adapting group debriefs. It may be more appropriate to discuss some issues in private. Depending on the intensity of the experience, some participants may require some personal time or a team activity immediately following activity. Staff, especially developing leaders will require special attention and debrief.

LOGBOOK

53. Many paddlers will wish to keep a personal logbook or journal of their paddling activities, qualifications, experience and trips. Such a personal logbook may be used to establish suitability for future paddling activities, courses or instructor positions. Trip and instruction logbooks are an important part of recording and reporting on paddling activities. OPIs, leaders and instructor must keep a logbook of the activities under their charge, as it becomes a legal record of the activity.

SPECIFIC CANOEING SAFETY STANDARDS

CCM REGULATIONS

54. Canoe training and tripping is in large part regulated by A-CR-CCP-030/PT-001, Water Safety Orders. Other safety guidelines as they apply are generic paddling concerns and have been addressed in the section above.

■ EQUIPMENT REQUIREMENTS

55. Additional equipment description for members of CCM undergoing canoeing training or tripping:
- a. **Canoes.** Although aluminum canoes are good for learning basic strokes and how to steer in a flat water environment, they are not adequate for intense, prolonged trips and moving water conditions. Aluminum canoes may be used for flat water and moving water conditions, up to class I. Plastic, Kevlar and composite canoes should be used for moving water training and trips.
 - b. **Spare Paddle.** Each canoe must have at least one spare paddle, it must be secured but immediately available in emergency (i.e. losing or breaking a paddle in rapids).
 - c. **Painters.** Six-metres end lines, fore and aft, 10-mm floatable polypropylene rope, with no knots, etc., at the free end which could snag.
56. **Clothing – Kneepads.** Some paddlers may require kneepads.

INSTRUCTOR QUALIFICATIONS AND EXPERIENCE

57. The following qualifications and experience augment the requirements at A-CR-CCP-030/PT-001.
58. Canoeing instructor qualifications:
- a. The CO of an RCSU may appoint a person as a canoe instructor who has successfully passed a Canoe Instructor Qualification Course offered by the Regional Cadet Instructor School (RCIS).

- b. The CO of an RCSU may appoint a person as a canoe instructor who has successfully passed a Canoe Instructor Qualification Course offered by Paddle Canada or one of its affiliated associations, the Paddle Canada qualification level must be appropriate for the level of the activity:
 - (1) Paddle Canada Flat Water instructor for flat water activities;
 - (2) Paddle Canada Moving Water Level 1 instructor for Class I to Class II moving water;
 - (3) Paddle Canada Moving Water Level 2 instructor for Class III moving water;
 - (4) Paddle Canada Canoe Tripping instructor Level 1 for flat water trips; and
 - (5) Paddle Canada Canoe Tripping Level 2 for moving water trips, note the Level 2 instructor qualification is not required but recommended.
 - c. The CO of an RCSU may appoint a person as a canoe instructor who has successfully passed a canoe instructor qualification course offered by a recognized canoe outfitter or training company after a review of skills and nomination by an RCIS instructor.
 - d. At least one instructor present at the training session or the trip must hold an emergency first aid qualification.
59. Canoeing instructor experience:
- a. Once qualifications are established no additional experience is required for flat water training and tripping.
 - b. At least one trip leader for moving water trips must have recent experience relative to the training to be conducted, and in similar water conditions as the ones expected on the paddling trip.
 - c. Moving water trip leaders must have prior experience as at least an assistant trip leader under an experienced trip leader prior to becoming the commander of a moving water expedition or a canoe trip.
 - d. To conduct moving water, big water or open water trips, trip leaders and instructors with additional qualifications and experience should be sought after to fulfill important leadership and safety roles, the following qualifications and experience are desired:
 - (1) wilderness first responder; and
 - (2) swift water rescue technician Level 1;
 - (3) 10 days and nights of canoe trip/camping leadership; and
 - (4) 500 km of canoe paddling experience.
60. Paddle Canada establishes national guidelines for canoe training and instructor progression but does not govern canoeing as such in each provinces and territories. The licensing/qualification authority remains with the provincial/territorial canoeing associations. Instructors will have to seek the appropriate qualifications from the province in which they will instruct the activity. The qualifications in most provinces will be very similar to the Paddle Canada national standards with the exception of British Columbia and Quebec. In those provinces, officers will have to follow the instructor qualification progression according to their provincial associations and administer the training accordingly.
61. The canoe program guidelines established at the national level follow the Paddle Canada national guidelines for paddler progression, not instructor qualifications.

SPECIFIC KAYAKING SAFETY STANDARDS

CCM REGULATIONS

62. Kayak instruction is mainly regulated by A-CR-CCP-030/PT-001, Water Safety Orders. Other safety guidelines as they apply are generic paddling concerns and have been addressed in the section above.

■ EQUIPMENT REQUIREMENTS

63. In accordance with the Small Vessel Regulations, each kayak must be equipped with the safety equipment mentioned in paragraph 14. However because of the nature of kayaks, with relatively small exit holes and limited space the following guidelines are necessary:

- a. the buoyant heaving line (15 m in length) must be in an accessible container (such as throw bag) so that it is not loose in the cockpit of the boat; and
- b. the bailer must be a small 750-ml container, stored in the rear of the cockpit.

64. Additional safety equipment description for members of CCM undergoing kayak training or tripping:

- a. **Kayaks.** Kayaks must be of a modern fabrication with a keyhole cockpit exit. Kayaks should not be significantly modified from their manufacturers specifications; flotation bags must be used in the rear portion the cockpit only, and spray skirts are necessary. Additional compartments must be sellable.

INSTRUCTOR QUALIFICATIONS AND EXPERIENCE

65. River kayaking instructor qualifications:

- a. The CO of an RCSU may appoint a person as a kayak instructor who has successfully passed a Kayak Instructor Qualification Course offered by Paddle Canada or one of its affiliated associations; the Paddle Canada qualification level must be appropriate for the level of the activity:
 - (1) Paddle Canada Flat Water Kayak instructor for flat water activities;
 - (2) Paddle Canada River Kayak Level 1 instructor for kayaking on Class I to Class II moving water; and
 - (3) Paddle Canada River Kayak Level 2 instructor for kayaking on Class III and IV moving water.
- b. The CO of an RCSU may appoint a person as a kayak instructor who has successfully passed a kayak instructor qualification course offered by a recognized paddling outfitter or training company after a review of skills and nomination by an accredited Subject-Matter Expert (SME) (instructor with RCIS or Paddle Canada qualifications).
- c. At least one instructor present at the training session or the trip must hold an emergency first aid qualification.
- d. No additional experience is required.

SPECIFIC VOYAGEUR CANOEING SAFETY STANDARDS

CCM REGULATIONS

66. Voyageur canoe instruction and tripping is not regulated in A-CR-CCP-030/PT-001, Water Safety Orders, by name. Never the less, A-CR-CCP-030/PT-001 regulates the use, training and tripping of voyageur canoes in the same way as canoes in general. Specific safety guidelines are further detailed below.

EQUIPMENT REQUIREMENTS

67. In accordance with the Small Vessel Regulations, each voyageur canoe must be equipped with the safety equipment mentioned in paragraph 14., as well as the following items:

- a. Voyageur canoes below 6 m in length must carry the necessary safety equipment as listed for regular canoes. In addition, voyageur canoes between 6 and 8 m in length must also carry:
 - (1) a re-boarding device (such as a watercraft ladder) if the freeboard of the canoes is greater than 0.5 m;
 - (2) one Class 5BC fire extinguisher if the craft is power driven; and
 - (3) six Canadian approved flares of Type A, B or C; voyageur canoes can be exempt this last requirement if the craft is travelling in waterways where it can at no time be further than 1 mile (1.6 km) from shore.
- b. Voyageur canoes between 8 and 12 m in length, have the same additional equipment required of other watercraft of 6 to 8 m with the exception of the following:
 - (1) one Class 10BC fire extinguisher if the craft is power driven; and
 - (2) twelve Canadian approved flares Type A, B or C; except if the craft can at no time be further than 1 mile (1.6 km) from shore, then no flares are necessary.

68. Additional safety equipment is required for members of the CCM undergoing voyageur canoeing training and tripping.

69. Equipment

- a. **Voyageur Canoes.** Voyageur canoes vary in size and construction. They are usually much bigger than conventional Canadian canoes and measure at least 6 m in length. Some modern materials are used for performance but traditional materials like wood, bark and canvas are used in historical reproduction. Regardless of the construction, the voyageur canoe must be built; of a sturdy frame, with a robust shell, with inherent buoyancy and be used according to manufacturers specifications.
- b. **Bailers.** At least two large volume (2 L) bailers must be carried or numerous smaller ones. Voyageur canoes can be very difficult to recover and will usually require much bailing if upset and prior to towing.
- c. **Spare Paddles.** Each canoe must have at least two spare paddles that are immediately available in case of an emergency.
- d. **Painters.** Six metre end lines, fore and aft, 10 mm floatable polypropylene rope, with no knots, etc., at the free end which could snag.

70. **Clothing – Kneepads.** Some paddlers may require kneepads.

SAFETY BOAT REQUIREMENTS

71. The safety boat requirement for voyageur canoe tripping is a motorized support boat as described in A-CR-CCP-030/PT-001. The minimum requirement for voyageur canoe day instruction (not more than 250 m from shore) safety boat is a voyageur canoe of similar size and ability. There must be at least one safety boat with two operators for every four-voyageur canoes.

TRANSPORTATION REQUIREMENTS

72. Voyageur canoes often weigh 125 kg (300 lb) or more. Their portage and land handling is therefore very difficult and requires a large number of porters and a well-coordinated effort.

73. Voyageur canoes require specialized canoe trailers. These trailers can be larger than regular canoe trailers and as such can be considerably more difficult to manoeuvre. Experienced trailer tow drivers should be sought for this task.

MAX AND MIN NUMBER OF PARTICIPANTS

74. Since safety and rescues are often accomplished with teamwork, there must be a minimum number of craft on the water to ensure the safety of all paddlers:

- a. During voyageur canoe training and tripping, there must be a minimum of two craft in a group. Smaller “in-land” type voyageur canoes (approximately 8 m long) must have a minimum of six paddlers and a maximum of 10 occupants. Reasonably, eight cadets and one instructor can operate this size of voyageur canoe with daypacks only in the canoe. Larger “open water” type voyageur canoes (approximately 11 m long) must have at least eight strong paddlers (or 10 smaller people), which allows room for full packs and no more than 16 paddlers with daypacks.

INSTRUCTOR QUALIFICATIONS AND EXPERIENCE

75. Voyageur canoeing instructor qualifications:

- a. No national or provincial association exists to govern the sport of voyageur canoeing. The skills defined in the progression matrix for this activity are based on comparable skills for regular tandem canoe training according to Paddle Canada. No specific instructor qualifications exist for voyageur canoe instructors or trip leaders.
- b. The CO of an RCSU may appoint a person as a voyageur canoeing instructor who has successfully passed the Canoeing Instructor Qualification Course offered by RCIS, Paddle Canada or one of its affiliated associations; the Paddle Canada qualification level must be appropriate for the level of the activity:
 - (1) Paddle Canada Flat Water instructor for flat water activities; and
 - (2) Paddle Canada Moving Water Level 1 instructor for Class I moving water.
- c. The CO of an RCSU may appoint a person as a voyageur instructor who has successfully passed a voyageur instructor qualification course offered by a recognized paddling outfitter or training company after a review of skills and nomination by an accredited SME (instructor with RCIS or Paddle Canada qualifications).
- d. At least one instructor present at the training session or the trip must hold an emergency first aid qualification.

76. Voyageur canoeing instructor experience (in addition to qualifications above):
- a. at least one day of experience paddling the craft prior to conducting day instruction;
 - b. at least three days of experience steering the craft prior to conducting voyageur canoe trips (including day, overnight and wilderness tripping), the days of experience must take place in similar conditions as the ones expected on the trip; and
 - c. trip leading experience and qualification equivalent to paragraphs 77.b., c. and d.

SPECIFIC SEA KAYAKING SAFETY STANDARDS

CCM REGULATIONS

77. Sea kayaking instruction and tripping is not regulated in A-CR-CCP-030/PT-001, Water Safety Orders, by name. Never the less, A-CR-CCP-030/PT-001 regulates the use, training and tripping of sea kayaks in the same way as canoes and kayaks in general. Specific safety guidelines are further detailed below.

EQUIPMENT REQUIREMENTS

78. Additional safety equipment description for members of CCM undergoing kayak training or tripping:
- a. **Sea Kayaks.** Sea kayaks must be of a modern fabrication with a keyhole cockpit exit. Kayaks should not be significantly modified from their manufacturers specifications; flotation bags should be used in the unoccupied portions of the craft, and spray skirts are necessary. Additional compartments must be sellable.
 - b. **Spare Paddles.** Every paddling group must carry at least one dismantled spare paddle; it must be secured but immediately available.

SAFETY BOAT REQUIREMENTS

79. The safety boat requirement for sea kayaking tripping is a motorized safety boat as described in A-CR-CCP-030/PT-001. The minimum requirement for sea kayaking day instruction (not more than 250 m from shore) is one instructor craft of the same size as the sea kayaks being used. For sea kayaking trips where motorized safety boats are not appropriate, an instructor boat must be assigned as safety boat in addition to the trip leader boat so that there is at least two instructor boats with each group.

INSTRUCTOR QUALIFICATIONS AND EXPERIENCE

80. Sea kayaking instructor qualifications:
- a. The Paddle Canada national guidelines for sea kayak training are accepted in every province and territory of Canada. Provincial canoeing associations are mandated to govern the qualification of sea kayak instructors. Sea kayak instructor qualifications however will easily transfer from one province to another.
 - b. The CO of an RCSU may appoint a person as a sea kayak instructor who has successfully passed a Sea Kayak Instructor Qualification Course offered by Paddle Canada or one of its affiliated associations; the Paddle Canada qualification level must be appropriate for the level of the activity:
 - (1) Paddle Canada Flat Water Kayak instructor for flat – calm/lake water day instruction;
 - (2) Paddle Canada Sea Kayak instructor for sea kayaking conditions in sheltered coastline with calm to light winds (<15 km/h, 8 knots);

- (3) Paddle Canada Sea Kayak instructor Level 2 for sea kayaking conditions in exposed coastline with frequent landing options, winds from slight to moderate (<25 km/h, 13.5 knots); and
- (4) Paddle Canada Sea Kayak instructor Level 3 or for sea kayaking conditions in exposed coastline with infrequent and difficult landing options, swells and strong winds (>25 km/h, 13.5 knots).

81. Sea kayaking instructor experience: trip leading experience and qualification equivalent to paragraphs 77.b., c. and d. is necessary.

ANNEX A

PADDLE CANADA PROVINCIAL/TERRITORIAL MEMBERS

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ANNEX B
PADDLING PROGRESSION MATRIX

Age	Star Level	Intensity of the Activity	Delivery Method	Progression of the Activity	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-14	Green to Gold (Note)	Fam/Basic	Day Inst	FW – Level A (Tandem)	FW	Fam 1-2 Basic 1 to 4	None	Max 30 Min 4	1:12	LHQ	CIC/CIs Local SME	Detachment
13-15	Red to Gold (Note)	Basic	Day Inst/ Day Trip	FW – Level A, B and C (Tandem)	FW/ Open Water	Fam 1-2 Basic 1 to 4	None	Max 30 Min 4	1:12	LHQ	CIC/CIs Local SME	Detachment
14-16	Silver to Gold (Note)	Basic/ Intermediate	Day Inst	MW – Level 1 (Tandem)	Open Water/ Class I-II	FW or Open 1 to 7; MW 1 to 9	None	Max 30 Min 4	1:6	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
15-17	Silver to Gold (Note)	Intermediate	Overnight Trip	FW/MW – Level 1 (Tandem)	FW/MW Mostly Class I	FW or Open 1 to 7; MW 1 to 9	None	Max 20 Min 6	1:12 (FW)/ 1:6 (MW)	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
15-17	Gold (Note)	Intermediate	Overnight Trip	MW – Level 1 (Tandem)	Open Water/ Class I-II	1 to 12	None	Max 20 Min 6	1:6	Zone	CIC/CIs Local SME Contract With Trade	Region
16-17	Gold (Note)	Intermediate	Day Inst/ Day Trip	FW – Level D (Solo)	FW	1 to 7	Bronze	Max 10 Min 4	1:6	Zone	CIC/CIs Local SME	Region
16-17	NSCE & MC	Intermediate/ Advance	Wilderness Trip	MW – Level 1 (Tandem)	Open Water/ Class I-II	13-14	Bronze	Max 15 Min 6	1:6	Regional	CIC/CIs Local SME Contract With Trade	Region
16-17	NSCE & MC	Intermediate/ Advance	Day Trip/ Overnight Trip	FW – Level D (Solo)	FW/Open Water	FW or Open 1-7	Silver	Max 10 Min 4	1:6	Regional	CIC/CIs Local SME Contract With Trade	Region
17-18	NSCE & MC	Intermediate/ Advance	Wilderness Trip	MW – Level 2 (Tandem)	Open Water/ Class I-III	1 to 14	Silver	Max 15 Min 6	1:6	Regional/ National	CIC/CIs Local SME Contract With Trade	Regional/National
17-18	NSCE & MC	Intermediate	Day Inst/ Day Trip/ Overnight Trip	MW – Level 1 (Solo)	Class I-II	1 to 14	Silver/Gold	Max 10 Min 4	1:6	Regional/ National	CIC/CIs Local SME Contract With Trade	Regional/National
<p style="text-align: center;">NOTE</p> <p>Gold Star level in this chart includes National Star Certification Examination (NSCE) and Master Cadet (MC) unless those levels are identified separately.</p>												

Figure 3B-1 (Sheet 1 of 2) Canoeing Progression Matrix

Paddle Canada Canoeing Levels	
Flat Water (FW) – Level A (Tandem):	Basic intro to canoe paddling skills
FW – Level B (Tandem):	Trimming; turns, landings, lifts and carries
FW – Level C (Tandem):	Pivots, side displacements, straight line and canoe on vehicles
FW – Level D (Solo):	All skills from FW A, B and C for solo paddler
Moving Water (MW) – Level 1 (Tandem):	Landings, eddy turns, S-turns, ferries, surfing, portaging and lining in Class I-II water
MW – Level 2 (Tandem):	Landings, eddy turns, S-turns, ferries, surfing and portaging in Class I-III water
MW – Level 1 (Solo):	All skills from MW for solo paddler, Class I-II water
Paddle Canada/Canoe Safety Skills	
1	Swim with PFD – calm response to direction
2	On-water communications
3	FW IAs on dumping – retrieving a canoe
4	FW rescue – canoe over canoe
5	FW treading water
6	FW re-entering a canoe
7	FW AR using a canoe
8	River communications
9	MW swimming a rapid – calm response to direction
10	MW self-rescue
11	MW line toss and rescue
12	MW IAs on dumping – retrieve a swamped canoe
13	MW AR using a canoe

Figure 3B-1 (Sheet 2 of 2) Canoeing Progression Matrix

Age	Star Level	Intensity of the Activity	Delivery Method	Progression of the Activity	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-14	Green to Gold (Note 2)	Fam/Basic	Day Inst	FW	FW	Fam 1-2 Basic 1 to 4	None	Max 30 Min 2 Boats	1:10 (Note 3)	LHQ	CIC/CIs Local SME Contract With Trade	Detachment
13-15	Red to Gold (Note 2)	Fam/Basic	Day Inst/ Day Trip	FW	FW/ Open Water	Fam 1-2 Basic 1 to 4	None	Max 30 Min 2 Boats	1:10 (Note 3)	LHQ	CIC/CIs Local SME Contract With Trade	Detachment
14-16	Silver to Gold (Note 2)	Basic/ Intermediate	Day Inst	MW – Level 1	Open Water/ MW Class I-II	FW or Open 1-7; MW 1 to 9	None	Max 30 Min 2 Boats	1:10 (Note 3)	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
	Silver to Gold (Note 2)	Intermediate	Day Trip/ Overnight Trip	FW Steering/ MW – Level 1	Open Water/ MW Mostly Class I	FW or Open 1-7; MW 1 to 9	None	Max 30 Min 2 Boats	1:10 (Note 3)	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
15-17	Gold (Note 2)	Intermediate	Overnight Trip	MW – Level 1	Open Water/ MW Class I-II	1 to 11	Bronze	Max 30 Min 2 Boats	1:10 (Note 3)	Zone	CIC/CIs Local SME Contract With Trade	Region
16-18	NSCE & MC	Intermediate/ Advance	Wilderness Trip	MW – Level 1- Steering	Open Water/ MW Class I-II	1 to 14	Bronze/ Silver	Max 20 Min 2 Boats	1:10 (Note 3)	Regional/ National	CIC/CIs Local SME Contract With Trade	Regional/ National
<p style="text-align: center;">NOTES</p> <ol style="list-style-type: none"> 1. Voyageur canoeing skill levels are not available from paddling governing bodies, the levels used are the equivalent skills used for regular canoes by Paddle Canada. 2. Gold Star level in this chart includes NSCE and MC unless those levels are identified separately. 3. There must be an adult supervisor/instructor in each voyageur canoe or an experienced senior cadet who has demonstrated very good steering skills in voyageur canoes and a great deal of maturity. In this case, an adult instructor in another boat must be in close proximity (50 m). 												

Figure 3B-2 (Sheet 1 of 2) Voyageur Progression Matrix

Class of Activity	
FW	
FW Steering	
MW Level 1	
MW Level 1 Steering	
Paddle Canada/Canoe Safety Skills	
1	Swim with PFD – calm response to direction
2	On-water communications
3	FW IAs on dumping – retrieving a canoe
4	FW rescue – canoe over canoe
5	FW treading water
6	FW re-entering a canoe
7	FW AR using a canoe
8	River communications
9	MW swimming a rapid – calm response to direction
10	MW self-rescue
11	MW line toss and rescue
12	MW IAs on dumping – retrieve a swamped canoe
13	MW AR using a canoe
14	MW canoe rescue (conscious victims)

Figure 3B-2 (Sheet 2 of 2) Voyageur Progression Matrix

Age	Star Level	Intensity of the Activity	Delivery Method	Progression of the Activity	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-14	Green to Gold (Notes 1 to 3)	Fam	Day Inst	FW	FW	1 to 3	None	Max 15 Min 3	1:6	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
13-15	Red to Gold (Notes 1 to 3)	Basic	Day Inst	FW	FW	1 to 6	None	Max 15 Min 3	1:6	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
14-16	Red to Gold (Notes 1 to 3)	Fam	Day Inst	MW	Class I	1 to 11	None	Max 15 Min 3	1:4	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
15-17	Silver to Gold (Notes 1 to 3)	Basic	Day Inst/ Day Trip	FW	FW/Open Water (Winds <6 knots [11 km/h])	1 to 9	None	Max 15 Min 3	1:4	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
16-17	Gold (Notes 1 to 3)	Intermediate	Day Inst	MW	Class I-II	1 to 13	Bronze	Max 15 Min 3	1:4	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
17-18	Gold (Notes 1 to 3)	Intermediate	Day Trip	FW/MW	FW/MW Mostly Class I	1 to 14	Bronze	Max 15 Min 3	1:4	Zone/ Region	CIC/CIs Local SME Contract With Trade	Region
16-17	NSCE & MC	Intermediate	Day Trip	MW	Class I-II	1 to 16	Bronze	Max 15 Min 3	1:4	Zone/ Region	CIC/CIs Local SME Contract With Trade	Region
17-18	NSCE & MC	Advance	Day Inst	MW	Class III-IV	1 to 16	Silver	Max 10 Min 3	1:4	Region/ National	CIC/CIs Local SME Contract With Trade	Region/ National
17-18	NSCE & MC	Advance	Day Trip	MW	Class III-IV	1 to 16	Silver	Max 10 Min 3	1:4	Region/ National	CIC/CIs Local SME Contract With Trade	Region/ National
<p>NOTES</p> <ol style="list-style-type: none"> Gold Star level in this chart includes NSCE and MC unless those levels are identified separately. There is to be no overnight camping gear carried in river kayaks; therefore river kayaks are not used for wilderness trips. No river kayaking in open water (more than 6-knots winds). Paddle Canada does not have complete river kayaking program standards; the first level however is the same as sea kayaking. 												

Figure 3B-3 (Sheet 1 of 2) River Kayaking Progression Matrix

Paddle Canada Progression

FW Kayaking: Intro to kayaking, paddler may use either a river or sea kayak

Safety Skills

- 1 Swim with PFD – calm response to direction
- 2 On-water communications
- 3 FW wet exit
- 4 FW treading water – retrieving a swamped kayak
- 5 FW kayak stabilization and re-entering a kayak
- 6 FW rafting-up
- 7 FW T-rescue
- 8 FW bow rescue
- 9 FW intro to rolls
- 10 River comms
- 11 MW swimming – calm response to direction
- 12 MW self-rescue
- 13 MW line toss and rescue
- 14 MW IAs on wet exit – retrieve a swamped kayak
- 15 MW rolling capability 4/5 each side
- 16 MW kayak rescue (conscious victim)

Figure 3B-3 (Sheet 2 of 2) River Kayaking Progression Matrix

Age	Star Level	Intensity of the Activity	Delivery Method	Progression of the Activity	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-14	Green to Gold (Note)	Famil	Day Inst	Flat Water Kayaking	Flat Water	1 to 3	None	Max 15 Min 3	1:10	LHO/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
13-15	Red to Gold (Note)	Basic	Day Inst	Flat Water Kayaking	Flat Water	1 to 8	None	Max 15 Min 3	1:10	LHO/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
14-16	Silver to Gold (Note)	Intermediate	Day Inst	Sea Kayaking Level 1	Sheltered Open Water	1 to 13	None	Max 15 Min 3	1:4	LHO/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
15-17	Gold (Note)	Intermediate	Day Trip/ Overnight Trip	Sea Kayaking Level 1	Sheltered Open Water	1 to 13	None	Max 15 Min 3	1:4	LHO/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
16-17	NSCE & MC	Advanced	Day Inst/ Day Trip	Sea Kayaking Level 2	Open Water	1 to 16	Bronze	Max 15 Min 3	1:4	Region/ National	CIC/CIs Local SME Contract With Trade	Region/ National
17-18	NSCE & MC	Advanced	Overnight Trip	Sea Kayaking Level 2	Open Water	1 to 16	Bronze/ Silver	Max 15 Min 3	1:4	Region/ National	CIC/CIs Local SME Contract With Trade	Region/ National
<p style="text-align: center;">NOTE</p> <p>Gold Star level in this chart includes NSCE and MC unless those levels are identified separately.</p>												

Figure 3B-4 (Sheet 1 of 2) Sea Kayaking Progression Matrix

Paddle Canada Progression

Flat Water Kayaking: Intro to kayaking, paddler may use either a river or sea kayak

Sea Kayaking Level 1: Basic theory and skills for a day long sea kayak trip in sheltered waters; coastline must be sheltered with easy landing options; winds <8 knots (15 km/h)

Sea Kayaking Level 2: Provide theory and skills for sea kayaking in moderate conditions, including overnight; coastline can be exposed but has frequent landing options; winds <13.5 knots (25 km/h)

Sea Kayaking Level 3: Provide theory and skills for sea kayaking in advanced conditions during extended periods; paddler must have considerable paddling experience (at least 30 days in sea kayaking Level 2 conditions)

The coastline may be exposed with infrequent and difficult landing options, sea conditions may be rough, including swells and winds greater than 13.5 knots (25 km/h)

Safety Skills

- 1 Swim with PFD – calm response to direction
- 2 On-water communications
- 3 FW wet exit
- 4 FW treading water – retrieving a swamped kayak
- 5 FW kayak stabilization and re-entering a kayak
- 6 FW rafting-up
- 7 FW T-rescue
- 8 FW bow rescue
- 9 Sea Kayaking (SK) communications
- 10 SK Eskimo rescue
- 11 SK deep water rescue
- 12 SK self-rescue
- 13 SK towing
- 14 SK all in rescue
- 15 SK rolling
- 16 SK knots

Figure 3B-4 (Sheet 2 of 2) Sea Kayaking Progression Matrix

ANNEX C

REFERENCES

DND/Directorate of Cadets, A-CR-CCP-030/PT-001, Water Safety Orders (Ordonnances de sécurité nautique), 2003.

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ANNEX D

INTERNATIONAL SCALE OF RIVER DIFFICULTY¹

CLASS I: EASY

1. Few or no obstructions – All obvious and easily missed with little training.
2. Fast-moving water with riffles and small waves.
3. Risk to swimmers is slight.
4. Self-rescue is easy.

CLASS II: NOVICE

1. Straightforward rapids with wide, clear channels which are evident without scouting.
2. Occasional manoeuvring may be required, but rocks and medium-sized waves are missed easily by trained paddlers.
3. Swimmers are seldom injured and group assistance, while helpful, is seldom needed.
4. Rapids that are at the upper end of this difficulty range are designated “Class II+”.

CLASS III: INTERMEDIATE

1. Rapids with moderate, irregular waves which may be difficult to avoid and which may swamp an open canoe.
2. Complex manoeuvres in fast current and tight passages requiring good boat control frequently exist.
3. Large waves, holes, and strainers may be present, but are easily avoided.
4. Strong eddies and powerful current effects can be found, particularly on large volume rivers.
5. Scouting is advisable for inexperienced parties.
6. Chance of injuries while swimming are low, but group assistance may be required to avoid long swims.

CLASS IV: ADVANCED

1. Intense, powerful but predictable rapids requiring precise boat handling in turbulent water.
2. Depending on the character of the river, there may be long unavoidable waves and holes or constricted passages demanding fast manoeuvres under pressure.
3. A fast, reliable eddy turn may be needed to negotiate the drop, scout rapids, or rest.
4. Rapids may require “must” moves above dangerous hazards.
5. Scouting is necessary the first time.
6. Risk of injury to swimmers is moderate to high, and water conditions may make self-rescue difficult.
- 7.

¹ Taken from Mason, B. *Path of the Paddle*. Toronto, Ontario: Key Porter Books, 1995.

8. Group assistance for rescue is often essential but requires practiced skills.
9. A strong Eskimo roll is highly recommended.

CLASS V: EXPERT

1. Extremely long, obstructed or very violent rapids which expose a paddler to above-average risk or injury.
2. Drops may contain very large, unavoidable waves and holes or steep, congested chutes with complex, demanding routes.
3. Rapids often continue for long distances between pools or eddies, demanding a high level of fitness.
4. What eddies exist, may be small, turbulent or difficult to reach.
5. Several of these factors may be combined at the high end of this class.
6. Scouting is mandatory.
7. Rescue is extremely difficult, even for experts.
8. A very reliable Eskimo roll, and above-average rescue skills are essential.

CLASS VI: EXTREME AND EXPLORATORY

1. Difficulties of Class V are carried to the limits of navigability.
2. Nearly impossible and very dangerous.
3. Risks are high and rescue may be impossible.
4. For team of experts only, at favourable water levels, after close study, and with all precautions.
5. The frequency with which a rapid is run should have no effect on this rating, as there a number of Class VI rapids that are regularly attempted.

CHAPTER 4

CAVING

DESCRIPTION OF ACTIVITY

1. Caving is the sport of cave discovery and exploration through the facilitation of an experienced leader/guide. Caving evolved from the scientific research of speleology (the study of natural caves). Caves are usually found in karst topography, formed from the reaction of mineral and chemical deposits in addition to physical factors. The carbonate bedrock (limestone, dolomite and marble) often found with karst topography can be very fragile and some dangers are associated with this sport. Hazards can include flooding, rock instability, falls, getting stuck, getting lost, light failure, exhaustion, and hypothermia. Depending on the level of difficulty and the distance traveled in the cave, caving can be a strenuous activity requiring reasonably good fitness and health. In Canada, most caves especially on the West Coast and in the Rockies are fairly cold. Subterranean temperature often does not rise above 5°C.

2. For the purpose of adventure training in the CCM, cave categories are divided into the four following categories; these cave categories are based on the British Columbia Speleology Federations proposed categories:

- a. **Level 1 – Surface Karst.** This is a surface tour of a karst formation, hiking along the surface of the features of the caves or karst. It may be possible to view the inside of caves from the entrance but participants do not need lights or helmets.
- b. **Level 2 – Horizontal and Semi-horizontal Caves.** Defined as a cave where the explorers can walk, hike, crawl, squeeze and scramble without the help of weight bearing devices such as ropes, harness, slings and anchors. If a section of the cave requires such equipment, it is no longer a horizontal cave. The section of the cave leading up to a vertical pitch or the channels of a cave that do not contain vertical sections continue to be considered horizontal. The use of knotted ropes for hand lines, handrails and ladders up to a height of 2.5 m is acceptable in this category. Duration is generally 0.5 to 4 h.
- c. **Level 3 – Vertical Caves.** Any cave or section of a cave where for the safety of the participants, rope protection should be used to assist in vertical ascent, descent (anything over 2.5 m) or horizontal movement. Special procedures, training and qualifications are required to lead and participate in vertical caving activities.
- d. **Level 4 – Submerged Caves.** Any section of cave that requires the participants to be submerged under water deeper than their knees. Special procedures, training and qualifications are required to lead and participate in submerged caving activities.

3. Within each of these cave categories, dangerous and environmentally sensitive conditions exist and precautions must be taken to avoid accidents. Some horizontal cave conditions can be more dangerous to its' visitors than vertical caves that require technical rope knowledge.

AIM OF ACTIVITY

4. The purpose of caving activities in the CCM is to continue the development of learned basic skills in a new and challenging environment. Basic hiking skills are usually necessary to reach the entrance of caves and may also be combined with other adventure activities such as mountain biking, camping and mountaineering. In certain areas, local authorities or caving clubs may have charted established cave systems and the use of navigational skills such as maps and compass and orienteering become an important component of a caving activity. Rope working skills similar to those used in abseiling, and climbing become an important component of Level 3 (vertical) cave visits. Commercial outfitters are usually able to offer great educational and interpretive caving activities.

CANADIAN REGULATIONS CONCERNING SPECIFIC ACTIVITIES

5. National parks, forestry preserves and environmental agencies protect some areas and caves. Private property owners usually block off entrances to caves as they become a liability issue. CCM members will only participate in caving activities in established, sanctioned caves or gain permission from the governing authority/land owner.

MILITARY REGULATIONS

6. Caving is also referred to as potholing in DAOD 5031-10, Adventure Training. Regulations on caving for the CCM from this CFAO were included in this chapter. In cases where caving activities take place on private property or regulated public property (such as parks or forestry reserve), a DND land use agreement or regionally produced contract must be signed by the land owner or the appropriate authority.

CCM SAFETY REGULATIONS

7. Unless specific approval has been given, participants will not sleep overnight in caves. All waste, including all human waste, will be carried out in plastic bags and disposed of in appropriate sanitary facilities. The British Columbia Speleological Society (BCSS) Code of Conduct for Caves (Annex A) must be followed.

AUTHORITY LEVEL

8. Appropriate authority must be granted to carry out all forms of caving activities. The authority level is designated in the progression matrix at Annex B.

GOVERNING BODIES

9. There is no national organization regulating the sport of caving and cave rescues. There are however, many provincial speleological associations, cave rescue associations and caving clubs. Speleological associations and rescue associations often function in partnership with universities and other provincial agencies and should be relied upon as the primary source of information and authority.

10. Certain government agencies (e.g. parks), especially in British Columbia, require that group leaders possess both the self-rescue course (20 h) and the Advanced Rescue Techniques (seven days) offered by British Columbia Cave Rescue and the Alberta Cave Rescue prior to taking groups inside caves.

11. Caving clubs can offer local information, familiarization courses and rescue contacts. The Canadian Cave and Karst Information Server at www.cancaver.ca is a good source of local club listings and general information.

■ EQUIPMENT REQUIREMENTS

12. Safety equipment for each participant:

- a. **Caving or Climbing Helmet.** Must be International Mountaineering and Climbing Federation (UIAA/CE) approved if vertical movement such as climbing or descents are taking place. The helmets must have a secure, snug chinstrap that keeps the helmet from falling forward or back.
- b. **One Helmet Mounted Headlamp.** Must carry spare bulbs and batteries.
- c. **Two Other Sources of Light.** One of which must be readily accessible. Only one of these sources of light can be a lit flame. Candles and matches are considered only one backup.
- d. **Gloves.** Must be sturdy with leather palms and fingers, waterproof and warm as necessary.

- e. **Rubber Boots.** Should preferable reach just below the knees, have good sole treads and insulations that fit snugly on the foot; participants will not venture in water deeper than their boots. Hiking boots with many layers of waterproofing are acceptable, and are especially fitting for dry caves.
 - f. **Clothing.** Must offer insulation, and abrasion protection. Older clothes of little value are preferable since they will likely be damaged in the cave. Warm clothes must be worn under waterproof garment if low temperatures or excessive dampness/wetness are expected.
13. Safety equipment for the group:
- a. **Side or Backpacks.** To carry spare clothing, equipment, food and safety equipment.
 - b. **First Aid Kit.** Must be complete with enough supplies for the number of members in the party and the type of activity.
 - c. **Communications.** At least a method of communicating within the group and one method of communicating with the outside for help.
 - d. **Food and Water.** High-energy food and sufficient water for group and for the duration of the activity.
 - e. **Garbage Bags.** Each group must carry at least one large, resistant quality garbage bags per person. These bags can be used for insulation, carrying out garbage or waterproofing clothing.
 - f. **Space Blanket.** At least one space blanket for every four people must be carried with the group during a caving (Level 2 or 4) activity.
14. Additional safety equipment for vertical caves (refer to SME):
- a. static ropes; at least 11 mm diameter, UIAA/CE approved;
 - b. seat and chest harnesses;
 - c. ascenders and descenders;
 - d. many lengths of 1-in. tubular sling;
 - e. bolts for anchors; and
 - f. sufficient locking carabineers.

RECOMMENDED EQUIPMENT

15. Recommended equipment, to include:
- a. elbow and kneepads for each participant;
 - b. cover-alls or over suit;
 - c. life line: 6 to 10 m piece of 1-in. tubular webbing and one carabineer per person; and
 - d. change of socks and dry foot wear.

■ RATION REQUIREMENTS

16. **Type.** There will be no cooking while inside caves; water may be boiled in emergency only, rations should be eaten cold or carried warm in a thermos. IMPs are suitable for caving activities and should be supplemented with high-energy foods such as dried fruit-cereal or chocolate bars; they are ideal since they can be eaten on the go, produce little garbage and do not require heating.

17. **Fluids.** Plenty of hot liquids and sugar drinks are necessary for caving activities.

18. **Amount.** Caving usually takes more energy than hiking, although the progress is often slow, decreased visibility and the foreign environment usually require higher levels of concentration. Caves are usually cold and wet, and in order to function properly participants need high-energy foods in large quantities. It is advised to carry 1.5 times the amount of food normally required.

19. **Preparation.** Since there is to be no cooking inside of caves, food must be eatable from its pack.

TRANSPORTATION REQUIREMENTS

20. Access to and from the training area must be permitted freely.

21. A safety and evacuation vehicle must be present at the closest vehicle access point. For caving activities of Level 3 and 4, the evacuation vehicle must carry a backboard and be able to carry a casualty immobilized on a backboard.

CADET SKILL LEVEL

22. Cadets need to be properly briefed on the BCSS Code of Conduct (Annex A) during caving prior to entering the cave. This briefing needs to be administered to every person, prior to entering a cave, at the beginning of each activity.

23. Cadets and staff need to understand the proper handling, maintenance and function of their equipment and the safety procedures in place while caving. Participants must be able to use and to change the batteries of their headlamps in the dark (practice blind folded). The caving leader will conduct a complete equipment check prior to entering the cave. Rope ladders must be stabilized or participants must be belayed.

24. Cadets and staff need to be exposed to caves gradually and a simple horizontal or semi-horizontal cave (Level 2) visit is necessary prior to visiting a more technically challenging cave. During an initial cave visit, participants must demonstrate acceptable behaviour, safety awareness and concern for the environmental sensitivity of the cave. Simple caving should be available to the entire cadet population willing to participate in this activity. The cadets must be able to perform the physical work required to reach the cave, visit the site and return to the start point without assistance. Special attention must be given to first time cave visitors, as they may not be aware of claustrophobic reactions. In cases where a cave leader suspects a cave visitor of suffering from claustrophobia, an assessment must be made to decide if it's necessary to either evacuate the person. No specific knowledge or skills are required at this point.

25. More advanced caving activities such as in Level 3 (vertical) caves or environmentally sensitive areas should be reserved for senior cadets that have demonstrated the correct attitudes and skills for caving. Participant for Level 3 caves or narrow passages should be carefully selected for mental/behavioural suitability. Special care must be given to identify cadets and staff that are claustrophobic and acrophobic and consider excluding them from the activity. Prior to participating in vertical cave visits, cadets must have demonstrated the following skills:

- a. a controlled abseil decent;
- b. appropriate/safe behaviour in an horizontal cave;

- c. a controlled Single Rope Technique (SRT) descent; and
- d. at least 5 m of SRT ascent.

26. SRT is commonly used in vertical caving activities but does not meet the requirements of abseiling. SRT is a separate and independent belay system appropriate for caving and caving SMEs only. Typically, contacts with the walls are avoided to protect them against damages.

PHYSICAL FITNESS

27. In order to participate in a caving activity, cadets must be able to reach the cave site and return without assistance. If long hikes are required to reach cave sites, cadets must have completed a similar terrain and length of hike prior to undertaking the caving activity. If a surface (Level 1) or horizontal cave (Level 2) is readily accessible by a short walk or vehicle access, there is no minimum physical fitness requirement.

28. Even with the use of mechanical advantage aids, cavers in vertical caves (Level 3) must be able to raise their own body either climbing on the surface of the cave or ascending a rope. Because of the requirement to raise one's own body weight, cadets and staff must pass the Silver level physical fitness test prior to participating in a vertical (Level 3) caving activity.

PROGRESSION MATRIX

29. Refer to the progression matrix at Annex B.

QUALIFICATIONS, EXPERIENCE AND FITNESS OF LEADERS AND OPI

30. **Subject-Matter Expert (SME).** Presently, there are no national qualifications recognized for participating and leading caving activities. Local caving clubs, speleology federations and cave rescue teams may have detailed, specific knowledge of certain caves and caving experience in general. Until officers are experienced and become qualified to the provincial/regional standards, SMEs in the community are to be sought and used as activity leaders and/or caving educators. It may be that commercial companies/outfitters are the only SMEs available and require to be contracted for certain caving activities. Cave leaders are considered SMEs when they possess the following:

- a. At least two years caving experience (at least 20 logged cave trips) gained within a caving group recognized as belonging to the organized caving community in Canada (reference the Canadian Caving Website). Must have demonstrated proficiency in underground movement, rigging and SRT and cave rescue.
- b. Demonstrated understanding of cave conservation issues (as per BCSF Code of Conduct).
- c. Completion both BCCR or Alberta Cave Rescue Association (ACRA) Rescue courses or equivalent (e.g. National Cave Rescue Council – USA; National Speleology Society – USA) described below:
 - (1) completed a prevention (approximately 20 h) course aimed at small party self-rescue, teamwork, hazard identification, risk assessment, basic rigging, basic SRT, emergency situation evaluation and improvised evacuation techniques; and
 - (2) full scale cave rescue (approximately seven days) seminar, which covers cave search and rescue.
- d. Favourable references from at least two cavers of recognized experience (preferably officers of organized groups) which confirm the following experience:
 - (1) experience organizing and leading at least two caving trips.

- e. Demonstrated current certification in occupational first aid or wilderness/advanced first aid beyond the basic level.

LEADER QUALIFICATIONS AND EXPERIENCE

31. In general, hiking experience combined with knowledge and enforcement of the BCSF Code of Conduct for caving is adequate for Level 1 (surface) caving activities.

32. Level 2 cave (horizontal) requires a leader to demonstrate the skills at paragraph 30., in addition to having at least seven caving experiences, two of which must be in a leadership role. The seven caving experiences must be logged and a recommendation from a senior member of a local/provincial caving organization is required. The reference must have accompanied the candidate in at least two visits, one of which must be while the candidate was in a leadership role. All Level 3 and 4 cave activities require an SME as activity leader.

33. **Medical/First Aid Qualifications.** At least one person must be standard first aid qualified for Level 1 and 2 cave activities. At least one person for every six participants must be advanced/wilderness equivalent first aid qualified for Level 3 and 4 trips.

34. The OPI must be a military person with command experience equivalent to at least a platoon commander; this is a requirement even if a civilian SME is acting as trip leader. The OPI must be familiar with general safety rules and protocols in training cadets; have demonstrated calm leadership skills and be able to recognize dangerous situations.

INSTRUCTOR TO CADET RATIOS

35. The following ratios of instructor to cadets must be adhered to:

- a. **Level 1.** As per hiking (one instructor for every 10 cadets).
- b. **Level 2.** One instructor for every four cadets.
- c. In some cases, SMEs may make recommendations to allow a lesser instructor to cadet ratio in Level 2 caves. When no severe dangers are immediate, short familiarization activities in such a cave may use a ratio of one instructor for every seven cadets.
- d. **Level 3 and 4.** One instructor for every four cadets.

MAX AND MIN NUMBER OF PARTICIPANTS

36. A minimum number of four cavers can participate in any caving activity. Participants will remain in groups of at least four, and will not divide once underground. Level 2, 3 and 4 caves will have a maximum number of eight participants. In some caves, environmentally sensitive structures or areas dictate that groups be no bigger than five visitors at a time. Consult with local authority, landowner, caving clubs or park officials. Certain caves may have facilities to accept big groups such as walkways, handrails and observation platforms; in such a case the cave authorities will dictate the maximum number of participant (usually no more than 15).

MANAGEMENT GUIDELINES

37. As much information as possible about the caving activity must be recorded and prepared prior to seeking permission to participate in caving activities. Proper and complete communication/liaison with local authorities, landowners, caving clubs, and caving rescue agencies is required as part of the development of a caving program and independent caving activities.

NECESSARY PLANNING/REQUIRED PREPARATORY WORK

38. **Required Recces.** At least one leader must have prior experience and knowledge of the road access, vehicle parking, cave entrance and the proposed visit path while inside the cave. If the cave system becomes complicated and has many channels, the leader must have an intimate knowledge of the cave.

39. **Lifelines.** If visiting areas of the cave that are not well known and complicated, then a life-line to the outside must be established; if the lifeline is likely to endanger or damage sensitive cave structures or ecology, then that section of the cave is not to be visited. When in doubt, err on the side of caution, do not jeopardize the caving code of conduct, except in an emergency.

40. **Required Plans With Local Authorities/Rear Party.** Although rear party/Point of Contact (POC) are not required during Level 1 and 2 caving activities, they are recommended. During Level 3 (vertical) caving activities however, POC must be in place either at the entrance of the cave or a nearby visitor centre/vehicle access. If local authorities govern the cave, permission must be granted for the cadets to visit. A complete itinerary, contact numbers and emergency contacts must be filed with these authorities. In the case where no local authority governs access to a cave, permission must still be acquired if the cave is on private property. In the event where no cave authority are readily available from the entrance of the cave/visitor centre, a rear party of at least one officer/adult must be in place at the entrance of the cave or nearby vehicle access. If the cave is a long hike (more than one hour away), then the rear party must have communication access to outside emergency agencies. The POC/rear party must have a detailed emergency plan and contact numbers.

41. **Communications.** Communications within caves are usually unreliable. The caving group's communication network therefore will usually rely on the rear party or the governing authority of a cave. Reasonable attempts should be made to inquire and test a variety of communications equipment that will not be intrusive to the environment in which the activity takes place. The rear party must have in hand a check-in protocol and activity itinerary.

42. **Navigational Aids.** The caving group must carry at least two maps that indicate the access to the cave, and an additional map and instructions must remain with the POC/rear party. If navigational aids are functional within the cave, and relied upon for navigation or exit, then there must be at least two with the group.

43. The **Emergency Plan** must contain contact information, and details including:

- a. contact method to and from the cave to POC/rear party;
- b. contact information for outside emergency/evacuation services;
- c. number, name, medical coverage, any special pertinent medical details; and contact info for each participants;
- d. activity itinerary;
- e. who and how will basic first aid situations be handled;
- f. who and how will severe first aid situations be handled; and
- g. evacuation plan:
 - (1) priority of evacuation;
 - (2) self-rescue evacuation;
 - (3) EMS assisted evacuation; and
 - (4) EMS controlled evacuation.

TIME OF DAY/YEAR REGULATIONS AND WEATHER CONSIDERATIONS

44. Caving will normally take place during daylight hours. Some circumstances however may present special educational opportunities in visiting caves at night. Such visit will only take place under the leadership of an SME, with the special permission of Regional Cadet Support Units. It is recommended that caving activities take place mostly in the summer and fall. Winter condition may make the access difficult and spring floods may severely affect the safety of caving participants. SMEs however are able to make recommendations in regards to such conditions and should be sought to make such assessments. Local clubs and land authorities may also have set visiting seasons according to special environmental conditions of the cave at different period of the year.

■ DURATION OF THE ACTIVITY

45. Caving activities will usually last about half a day, and only take place over one meal. Temperature, personal hygiene and fatigue are serious factors in deciding the duration of the cave visit. Cave leaders must continually monitor the group and make the necessary adjustments to their itinerary. Cave visits will never last longer than originally planned.

ENVIRONMENTAL CONSIDERATIONS

46. **Waste Disposal.** All waste will be carried out of the cave. Human waste, food garbage, used first aid supplies and especially fuels must be taken out of the caves and disposed of appropriately.

47. **Size of Group.** The instructor to cadet ratios, in addition to the maximum and minimum number of cavers, was set previously in this instruction. Those group sizes first address the safety requirements of this activity and also the environmental impacts of visits on caves. For these reasons, caving activity numbers are very low compared to other activities.

48. **Cooking.** There will be no cooking or boiling water in caves. The only exception to this instruction is in case of medical emergency.

49. **Specially Sensitive Areas.** All reasonable precautions must be taken to minimize the impact of cave visits on sensitive areas and cave structures. Damages that result from accidents and emergency procedures must be reported both to the cave authority and the appropriate Regional Cadet Support Unit (use the after action report from Annex D of Chapter 1).

LIMITATIONS

50. Under normal circumstances, CCM members will only participate in caving activities up to Level 3. In special situations, permission may be granted for CCM members to participate in Level 4 caving activities if recommended to do so by an SME and appropriate precautions are taken, e.g. PFD are worn, lifeguards are present, underwater search lights are available and can be used, and the SME has extensive experience in these conditions. If the environmental factors preclude these safety precautions, then the activity will not be permitted.

51. If environmental conditions change drastically or an injury/medical condition develops during a caving activity, the entire group must be evacuated as quickly as possible.

RISK MANAGEMENT

52. This chapter has identified very specific safety guidelines and safety considerations to be included in every level of risk managements. The following list of factors is not exclusive:

- a. classification of the cave, access and authority governing it;
- b. temperature inside and outside the cave;

- c. equipment available and required;
- d. age, experience and preparation of the participants;
- e. emergency plan;
- f. weather and environmental conditions; and
- g. leadership and SMEs.

DEBRIEF

53. Caving will always include some teamwork but is also a very personal experience. The low levels of light, the high levels of concentration and the personal challenges each participant will meet can be discussed in a learning/supportive environment. Group leaders should be especially aware of difficulties some participants may have encountered and use judgment in adapting group debriefs. It may be more appropriate to discuss some issues in private. Depending on the intensity of the experience, some participants may require some personal time or a team activity immediately following a cave visit. Staff, especially developing leaders, will require special attention and debrief.

LOGBOOK

54. In order to progress to other/different caving activities, participants will have to keep a record of their experience in the form of a logbook. Logbooks and journals are especially appropriate for the purpose of review and reflection in caving activities since most participants will experience very different and personal things. A logbook or a journal offers the opportunity to log all the appropriate information and the many important details of the caving activity. Either the OPI or the SME/caving leader must sign off logbooks if they are to be used as an assessment of performance or experience.

ANNEX A

BRITISH COLUMBIA SPELEOLOGICAL SOCIETY – CODE OF CONDUCT FOR CAVING ACTIVITIES

CAVING SAFETY: INDIVIDUAL RESPONSIBILITIES

1. Before Entering the Cave

- a. Let someone at home know of your itinerary and approximate schedule.
- b. Select appropriate personal equipment and supplies including headlamp, head protection, protective clothing (including gloves and kneepads), footwear, food and basic emergency supplies.
- c. Know how to properly use your personal equipment.
- d. Check your equipment and ensure that it is in good working condition.
- e. Check the weather and project the (hydrological) response of the cave to adverse weather conditions.
- f. Don't go underground under the influence of alcohol, drugs, or medication that could impair your judgment or performance.
- g. Inform the trip leader of any personal physical or mental limitations.
- h. Never plan to cave alone (groups of three are good; groups of four are preferable).

2. Inside the Cave

- a. Accept the trip leader's decisions.
- b. Identify, recognize, and evaluate inherent caving hazards (e.g. flooding, hypothermia, fatigue, rock falls, etc.).
- c. Don't exceed your abilities and limitations.
- d. Stay together (minimum two persons for side passages).
- e. Don't linger at entrances or other potentially unstable zones, or vertical exposed areas (e.g. pitches, overhanging ice).
- f. Avoid jumping, sliding, or making (unnecessarily) rapid manoeuvres.
- g. Don't attempt something untried without a backup plan (e.g. backing out of a tight passage).
- h. Don't share your equipment.
- i. Never throw anything into pitches.
- j. Avoid unnecessary chatter while moving (this distracts other participants who may value silence more than you).
- k. Know the agreed-upon communication protocol (used when voice communications are impractical or impossible).

CAVING SAFETY: TRIP LEADER'S RESPONSIBILITY

3. Before Entering the Cave

- a. Let someone on the surface know of your plans.
- b. Know how to activate an outside cave rescue operation.
- c. Ensure that all collective and personal equipment is matched to the cave's difficulty (and in good working order).
- d. Ensure that basic emergency equipment and supplies are taken (e.g. first aid kit, pulleys, heat source, extra rope, etc.).
- e. Plan the underground activity according to age, experience, skills, and physical condition.
- f. Have a back-up plan.

4. Inside the Cave

- a. Distribute experienced cavers to the front and back of group (and use the "buddy system" within the group).
- b. Progress through the cave as fast as the slowest person.
- c. Don't ask someone to perform something beyond his or her capability.
- d. Use fall protection for all vertical exposures.
- e. Recognize the symptoms of fatigue and hypothermia.
- f. Don't hesitate to call a halt to a "bad" trip.

MINIMUM IMPACT CAVING

5. Consult with prior visitors about sensitive features (this may also reduce the need for redundant visits).
6. Limit the size of the party to the minimum required for a safe visit (four is a reasonable lower limit).
7. Use a good source of light (avoid using acetylene-based headlamps in confined delicate areas).
8. Use suitable protective clothing.
9. Don't smoke or make fires (even at the entrance).
10. Stay on the established "minimum impact" route if already established, and avoid touching anything.
11. Never break or soil speleothems (including flowstone and moonmilk).
12. Don't "push" delicate passages.
13. Don't overuse sensitive caves or sensitive interior passages.
14. Never mark surfaces.

15. Don't discard anything (remove all modern discarded objects, even if you were not responsible for putting them there!).
16. Don't urinate or defecate inside the cave (carry out all human waste in the case of bivouac).
17. Don't disturb hibernating bats or other sensitive organisms.
18. Avoid altering natural air or water flows.
19. Improve personal technique and abilities rather than permanently modifying the cave.
 - a. Use bolts only as a last resort where natural or non-marking anchors (cams, chocks, etc.) cannot be used.
 - b. Place bolts or other permanent fixtures only after thoughtful consultation with the broader caving community, particularly other persons familiar with the cave.
 - c. Use only high-quality bolts, and tag all bolts with the date of installation
20. Avoid the use of explosives.
21. Avoid unique or unusual sediment accumulations.

ANNEX B
CAVING PROGRESSION MATRIX

Age	Star Level	Intensity of the Activity	Delivery Method	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/ Leadership	Authority
12-14	Green to Gold (Note 1)	Familiarization	Day Instruction	Level 1	1 and 2	None	Max 30	1:10	LHQ	CIC/CIs Local SME	Detachment
	Green to Gold (Note 1)	Familiarization	Day Instruction	Level 2	1 to 4	None	Max 15 Min 4	1:7	LHQ	CIC/CIs Local SME	Detachment
13-15	Red to Gold (Note 1)	Familiarization/ Basic	Day Instruction	Level 1-2	1 to 6	None	Max 5 Min 4	1:4	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
14-16	Silver to Gold (Note 1)	Basic	Day Instruction	Level 1-3 (Note 2)	1 to 7	Bronze	Max 5 Min 3	1:4	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
15-17	Silver to Gold (Note 1)	Intermediate	Day Trip	Level 1-3 (Note 2)	1 to 7	Silver	Max 5 Min 3	1:4	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
16-17	Gold (Note 1)	Advanced	Day Trip	Level 1-3 (Note 2)	1 to 7	Silver	Max 5 Min 3	1:4	Zone/Region	CIC/CIs Local SME Contract With Trade	Detachment/ Region/ National
17-18	NSCE & MC	Advanced	Day Trip	Level 1-3 (Note 2)	1 to 7	Silver	Max 5 Min 3	1:4	Zone/Region	CIC/CIs Local SME Contract With Trade	Detachment/ Region/ National
<p style="text-align: center;">NOTES</p> <ol style="list-style-type: none"> 1. Gold Star level in this chart includes NSCE and MC unless those levels are identified separately. 2. Because of the upper body strength requirements, participants in Level 3 caving must be at the Silver Fitness level, age in this case is a guideline. The caving OPI must confirm the suitability of each participant. 											

Figure 4B-1 (Sheet 1 of 2) Caving Progression Matrix

Classification of Caves	
Level 1 – Surface	
Level 2 – Horizontal	
Level 3 – Vertical	
Level 4 – Submerged	
Safety Skills	
1	Displays good response/behaviour to direction
2	Uses and wears safety equipment properly
3	Follows the Caving Code of Conduct
4	Understands and uses cave communications
5	Does not exhibit signs of acrophobia or claustrophobia
6	Recognizes danger and backs off
7	Uses SRT; descend and ascend
8	Navigates in a cave

Figure 4B-1 (Sheet 2 of 2) Caving Progression Matrix

ANNEX C

REFERENCES

British Columbia Cave Rescue (BCCR) (www.cancaver.ca).

British Columbia Speleological Society Code of Conduct (BCSC) (www.cancaver.ca).

Canadian Cave and Karst Information Server (www.cancaver.ca).

McClurg, D. *Adventures of Caving: A Beginner's Guide for Exploring Caves Softly and Safely*. Carlsbad, New Mexico: D & J Press, 1996.

National Speleological Society (NSS) and National Cave Rescue Commission (NCRC), USA.

CHAPTER 5

CLIMBING AND MOUNTAINEERING

GENERAL

1. This chapter is written in seven sections. The general portion applies to all climbing and mountaineering activities in general contained in this chapter. The subsequent sections contain those details specific to each activity.

DESCRIPTION OF ACTIVITY

2. Climbing is defined as an upward travel requiring the use of hands. In this chapter, climbing is further divided into the following categories: top roping; bouldering; lead and multi-pitch climbing; ice climbing; mountaineering; and abseiling.

3. Although mountaineering as described below does not always involve the continuous use of hands as seen in traditional climbing sports, it is included in this chapter because it is considered an advanced level of skill that requires very good technical knowledge and safety. Ascending a geographical feature that never requires the use of hands and remains below 2000 m is therefore considered hiking or backpacking for the purpose of this publication. Since there is some overlap and natural progression from hiking to climbing/mountaineering, some aspects of this chapter will build on the safety standards of that activity. Unless otherwise specified, the terms “climbing”, “climb” and “climber” will be used generically for all the activities described in this chapter including mountaineering.

4. **Top Roping.** Is the most common form of climbing. Whether on a rock face or an artificial wall, the activity is very similar. In all cases, a belayer uses a friction device controlling an anchored safety line that feeds from a point above the climber. The belayer may be situated either at the top or the bottom of the vertical climb, and in such a case, using a change of direction mechanism at the top. The climber is always tied into the safety rope and the belayer takes up most of the slack created by the climber ascending. A bit of slack in the rope allows the climber to manoeuvre and not be pulled up by the belay line. In case of a fall, the climber will fall a very short distance mostly due to the dynamic qualities of the rope.

5. **Bouldering.** Bouldering at the foot of cliffs and on artificial surfaces has become very popular and will likely continue to attract more climbers because of the low level of expertise and equipment required to participate in this sport. Bouldering practices the skills of climbing without the use of harnesses and safety ropes; it takes place on the lower 2 m of climbing surfaces and usually involves using crash mats and/or spotters (as described at Annex B) for safety instead of belay lines. The feet of the climber are never more than 1 m from the ground. The climber usually travels horizontally on a rock surface near the bottom instead of moving vertically. In this activity, very advance climbing skills can be practiced without expertise in safety rope management and time-consuming anchor set-up. If resources are available, i.e. enough instructors and facilities to allow room to climb with no vertical overlap, bouldering can be an ideal concurrent activity to top roping. As described at paragraph 11., Class 3 of the Yosemite Decimal System (YDS) rating scale that usually uses some scrambling will also be considered bouldering even though this activity overlaps hiking and mountaineering. Because no safety lines are used to protect the climber, other very stringent limitations set for this activity can be found at Annex B.

6. **Lead and Multi-pitch Climbing.** Occurs when climbers install protection on the rock face as they ascend, they are not tied into a rope at the top. In order to do this, the lead climber attaches their belay rope to either natural (trees or rock features) or artificial (chocks, friends, bolts, pitons or even ice screws when ice climbing) points of protection along the route. Then by passing their belay line through these wall attachments, the last installed protection becomes the highest point of attachment to the wall the climber has in case of an accident. When the climber falls, they will fall twice the length of the rope since their last protection in addition to the stretch of the entire rope between them and the belayer. Climbing a multi-pitch route takes place when a climber or teams of climbers are ascending a tall wall that requires multiple independent climbs. Multi-pitch climbs are used because of rope length limitation, to switch lead climbers or to keep the team together. Both lead and multi-pitch climbing require a great deal of knowledge, skill, experience and physical strength, it will therefore be limited to cadets who are 15 to 18 years of age.

7. **Ice Climbing.** Takes place on iced walls and steep surfaces, usually caused by water from a high water table seeping out of rock but it is also possible over frozen waterfalls and compacted crystalline snow/ice such as seen in glaciers. In addition, ice climbing requires very specialized equipment and techniques, i.e. crampons, boots, ice tools (axe, hammers, picks) and waterproof ropes. Just like rock climbing where there are many different kinds of rocks and some are better for climbing than others, i.e. granite (igneous) vs sandstone (sedimentary); ice from different sources can be very different. Ice formed from water is usually clear or mostly white if it's oxygenated. Depending on the mineral content of the rock outcrops where the water is seeping from, ice may carry some of those minerals, e.g. iron in the water/ice forms a rusty-orange colored ice; glacial ice formed from hard packed snow, pressure and freeze/thaw cycle often has a blue hue or a lot of grit forming a dirty ice called black ice. Ice climbing routes differs significantly from rock climbing because ice often has a chance to "mend" itself once the sun has melted the top layer and it has a chance to re-freeze overnight. Because of this mechanism, an ice-climbing route can be slightly different from one day to the next or very different from one weekend to the next. However, ice can be very fragile and unstable, a seemingly solid ice tool can hold up a climber one minute and quickly crumble leaving the climber sliding down an icy face the next, numerous factors complicate the technical aspect of this sport. It is also important to note that ice climbing equipment costs quickly become a limiting factor when practicing this sport.

8. **Mountaineering.** For the purposes of the CCM, Army Cadet mountaineering shall be defined as a sport consisting of an ascent, foot travel and sufficiently technical in nature to require skills in rope groups, crevasse rescue, avalanche assessment and/or river crossing (Chapter 5, Annex C). Mountaineering normally takes place at greater than 2000 m above sea level and may be above the tree line and/or on glaciers. For this publication, foot travel in alpine areas (no ice, glaciers or technical climbing) shall not be considered mountaineering, rather it is a bridge between hiking/backpacking and mountaineering. Mountaineering, including glacier travel, is a distinct activity, and should not be confused with winter hiking/camping or polar travel, which involves different characteristics, safety concerns, required skills and equipment.

9. **Abseiling.** Army cadet abseil is defined as making a descent of a steep rock-face or approved tower by using a rope fixed at a higher point with the abseiler attached to a secondary Top Rope Belay system.

9A. **Rappelling.** To rappel is defined in B-GL-392-003/PF-001, Rapelling Techniques and Procedures, as to descend by means of a rope passed around the body in such a way as to allow a rapid but controlled descent. Rappel training is progressive and designed to build self-confidence and overcome personal fear. Specific standards for cadet participation in rappel training are detailed in CATO 45-03, Military Rappel Training.

10. **Rating Systems.** Many rating systems exist for rock climbing and alpine mountaineering. The CCM will use the YDS, the most common rock climbing rating scale in North America. Other rating scales will be used for bouldering and ice climbing and they will be discussed in those specific sections/annexes.

11. Numerical scales are popular because their progression of difficulty is predictable, e.g. a climb rated as a 4 using the YDS scale is more difficult than a climb rated as a 3 and a 5 is more difficult than a 4. Furthermore, YDS rates the hardest/most technical section on a terrain/route. For the CCM, the YDS scale is also considered advantageous since it includes ratings for travel over non-vertical terrain such as described in Chapter 7. It should be noted however that no "One" rating scale is perfect and there are as many opinions on each rating scale as there are climbers. The following word description of the YDS scale was modified from the book *Mountaineering: Freedom of the Hills*, 1997:

- a. **Class 1.** Hiking, usually on a trail.
- b. **Class 2.** Simple scrambling, crossing obstacles with the occasional use of hands, requires route-finding skills, may be backcountry dense bush.
- c. **Class 3.** Angle is steep enough that hands are required for balance; scrambling on rocks using hands and feet, a rope might be carried.

- d. **Class 4.** Simple climbing, often with exposure requiring a rope belay. A fall could be serious or fatal. Natural protection can usually be easily found.
- e. **Class 5.** Technical rock climbing begins. Climbing involves the use of ropes, belays, and the placement of natural or artificial protection for the leader in case of a fall. An open ended decimal and alphabetical extension to Class 5 exists for rating vertical climbs within this category.
 - (1) **Class 5.0 – 5.4.** Novice vertical climb, two hand and two footholds are available for almost every move.
 - (2) **Class 5.5 – 5.6.** Some climbing technique is required, four holds may not be obvious.
 - (3) **Class 5.7.** At least one move on the climb is missing one hand or foothold.
 - (4) **Class 5.8 – 5.9.** Climbing shoes are recommended because holds are much smaller, good skill and strength is required.
 - (5) **Class 5.10.** Excellent skills and strength required, has moves that may only have one good hold.
 - (6) **Class 5.11 – 5.14.** Very advanced level of skill and strength required, expert level, with overhang(s) in the later range of this rating (5.13 and up).

AIM OF ACTIVITY

12. The aim of climbing is to develop self-confidence and self-reliance by exposing and challenging CCM members to the diverse geological formations of Canada and the world, usually in mountainous terrain. Most often, climbing activities require hiking skills in order to reach the necessary rock and ice surfaces we are seeking to climb. Such activities are beneficial to the physical health of the participants; they offer a learning environment not available before and explore the outdoor surroundings of a specific area. Climbing can be a physically and mentally demanding activity that must therefore be delivered with an eye to skill, experience and fitness progression. All humans have, at least initially, a certain amount of inherent acrophobia (fear of heights) and since climbing safety standards are very stringent, most climbers can practice this sport perceiving a high level of risk but operate within a relatively safe environment. Numerous youth groups and team-building companies use climbing activities to help the participants develop self-confidence and a sincere appreciation for nature's beauty, it is also a perfect learning environment for geology, ecology and history discussions.

CANADIAN REGULATIONS CONCERNING SPECIFIC ACTIVITIES

13. Specific regulations pertaining to climbing exist in certain areas such as national and provincial parks, nature preserves, world heritage sites and private land. Access to Canada's outdoors is readily available through private owners, municipalities, parks officials and forestry districts. It is sometimes necessary to gain a land use permit or special licenses for some specific areas. Often, there are costs and special regulations (limiting the groups size, access points, camping practices, waste disposal, safety communication and emergency/evacuation plans) associated with the use of special areas. Members of the CCM must adhere to all regulations in a specific area in addition to DND regulations.

14. Commercial property accessed through the purchase of passes or permits. The purchase of a permit is a legal contract between the owner/governing agency and the CCM members and as such grants right of use according to the conditions under which the permit was purchased.

MILITARY REGULATIONS

15. DAOD 5031-10 regulates adventure training in the CF.

AUTHORITY LEVEL

16. Respective RCSU COs may authorize climbing activities undertaken at the LHQ such as top roping and bouldering. Climbing and mountaineering introducing the more advanced skills will only be performed at the zone, region and/or national level and will therefore require those levels of approvals.

GOVERNING BODIES

17. There is no national or provincial governing body for climbing although numerous agencies use this activity in the delivery of their curriculum. There are many qualification courses, clubs and agencies that offer climbing experience and qualifications; however law requires none of them. The Association of Canadian Mountain Guides (ACMG) is the most recognized national agency in this field and it is the only Canadian association that holds a membership with the International Federation of Mountain Guides and Associations (IFMGA). ACMG offers three types of guide certification based at the University College of the Cariboo in Kamloops, British Columbia. These certifications are recognized as the industry standards for this publication. Current information regarding these certifications is available on the ACMG Website:

- a. **Mountain Guide.** A certification for professional mountain guides that includes three-certification streams: Alpine Guide, Ski Guide, and Rock Guide. The coveted Mountain Guide certification is issued to those holding both the Alpine and Ski Guide qualifications and this certificate is recognized by IFMGA.
 - b. **Hiking Guide.** A two-level certification program including Day Hiking Guide and Backpacking Guide.
 - c. **Climbing Gym Instructor.** A three-level certification program progressing in skill, responsibility and program management skills.
18. Although there is no legislation governing climbing, load bearing and safety climbing equipment such as ropes and helmets sold in most countries including Canada must meet the International Mountaineering and Climbing Federation (UIAA) or Conformité Européenne (CE) specifications.
- a. Association of Canadian Mountain Guides (ACMG)
P.O. Box 8341
Canmore, AB T1W 2V1
Telephone: 403-678-2885
Fax: 403-609-0070
Email: acmg@acmg.ca
 - b. International Federation of Mountain Guides and Associations (IFMGA) (www.ifmga.info).
 - c. Canadian Avalanche Association (CAA) (www.avalanche.ca).
 - d. International Mountaineering and Climbing Federation (UIAA), based in Switzerland (www.uiaa.ch).
 - e. The Alpine Club of Canada has many local associate clubs, seminars, activities and mountain huts for club members:
P.O. Box 8040, Indian Flats Road
Canmore, AB T1W 2T8
Website: www.alpineclubofcanada.ca

- f. La Fédération québécoise de la montagne et de l'escalade (FQME)
4545 Pierre-de-Coubertin Avenue
P.O. Box 1000, succursale M
Montréal, QC H1V 3R2
Telephone: 514-252-3004
Fax: 514-252-3201
Toll Free: 1-866-204-3763
Email: fqme@fqme.qc.ca
Website : www.fqme.qc.ca
- g. École nationale d'escalade du Québec (ENEQ) offers the qualification program recognized by FQME. They offer three levels of qualification (facilitator, monitor [initiator] and instructor) for three-activity streams: artificial surface, rock and ice climbing; no alpine qualification exists at the time this document was prepared.

155 Charles Aubertin
Boucherville, QC J4B 4P7
Telephone: 514-276-4840
Fax : 450-641-0841
Website : www.eneq.org

19. There is no international, national or provincial governing body for indoor and/or outdoor man-made climbing/abseiling wall/site standards. In this case, all non-CF man-made climbing/abseil walls/sites need to be approved by RCSU COs. There are many abseil/climbing wall/site providers/manufacturers who conform to or exceed safety standards for procedures and equipment from various and recognized agencies/associations who have an accreditation program. However the following are the most recognized and recommended agencies/associations in this field:

- a. Outdoor Industry Association (OIA) – Climbing Gym Association (CGA) (<http://www.outdoorindustry.org/>).
- b. Climbing Wall Association (<http://www.climbingwallindustry.org/>).
- c. Outdoor Recreation Coalition of America (ORCA) (<http://www.orca.org/subgroup/CWIG/>) – Climbing Wall Industry Group (CWIG) (<http://www.monosculpt.com/cwig.htm>).

EQUIPMENT REQUIREMENTS

20. The additionally required activity specific equipment is listed in the respective section starting at paragraph 61.

21. The following equipment is required to be carried where appropriate to the activity:

- a. Clothing:
 - (1) must be appropriate for the weather conditions and the activity;
 - (2) offer wind and rain resistance;
 - (3) long-sleeve shirts and long pants;
 - (4) flexibility without drag, usually form fitting;
 - (5) layered as necessary;
 - (6) be comfortable; and
 - (7) be complete including head, hands, legs and foot warmth.

■ b. Footwear:

- (1) A hiking/approach shoe is necessary when travelling to a climb location (refer to Chapter 7 for specific terrain requirements, i.e. flat, inclined or wet terrain).
- (2) Every type of climbing in this publication requires specific footwear. For this purpose, refer to the appropriate and specific sections starting at paragraph 61.

c. Necessary food and water (see rations at paragraph 24.).

d. Communications:

- (1) Communication must be established before start of activity.
- (2) It is required that all groups, regardless of their proximity to medical attention should be able to use at least one method of communication to request help.
- (3) Hand-held radios, short-wave radios, cellular phones and satellite phone must be considered so that communications is reliable with at least one means.

e. First aid:

- (1) First aid equipment must be carried with every group that travels independently.
- (2) First aid equipment must be adequate for the activity and in sufficient quantity for the size of the group.
- (3) Climbing in remote/wilderness areas requires Advanced First Aid equipment and/or life support.

f. Group equipment (for one-day activity):

- (1) At least one mean of obtaining and purifying water is required.
- (2) Appropriate maps and compasses for navigation.
- (3) Whistles.
- (4) Bear spray or anti-predator device is required if travelling in bear/predator country.

g. Climbing equipment:

- (1) All weight bearing and safety equipment used for climbing activities must be certified UIAA, CE or ISO manufacturing standards seals.
- (2) D E L E T E D
- (3) D E L E T E D
- (4) D E L E T E D
- (5) All hardware that have grooves that are more than 1/8 in. in depth should be retired.

- (6) Cadets must be instructed to report any loss or damage to equipment immediately.
- (7) A maintenance schedule and log must be kept for all climbing equipment including rope, slings, hardware, helmets and harnesses.
- (8) D E L E T E D
- (9) D E L E T E D
 - (a) D E L E T E D
 - (b) D E L E T E D
- (10) D E L E T E D
- (11) D E L E T E D
- (12) D E L E T E D
- (13) D E L E T E D
- (14) D E L E T E D
- (15) All climbing equipment shall be cared for and inspected in accordance with the standards outlined in A-CR-050-822/PC-001, *Qualification Standard, Cadet Instructors Cadre – Abseil Instructor*. On inspection, any equipment determined to be damaged or sufficiently worn shall be retired from service.
- (16) Ropes shall be inspected prior to use and at the conclusion of each day's activities. Under acceptable conditions (i.e. dry, room temperature, and away from chemicals, dirt, acids, sunlight, and alkali compounds) a rope will have a shelf life of five years. However, a rope should be retired within four years of usage from the date of first use or, in a case where damage to the rope is noticeable, a rope shall be deemed unserviceable immediately.
- (17) Harnesses shall be inspected prior to use and at the conclusion of each day's activities. Under acceptable conditions a commercial seat harness that is UIAA/CE approved will be retired after five years of usage from the date of first use or, in a case where damage to the harness is noticeable, a harness shall be deemed unserviceable immediately.

RECOMMENDED EQUIPMENT LIST

- 22. Further developed in the respective sections starting at paragraph 61.
- 23. Hand-held signal flares and at least one GPS should be considered if the activity is taking place in a wilderness setting.

RATION REQUIREMENTS

- 24. Rations that can be eaten at the training site are recommended for climbing activities. The use of such rations will minimize lost training time and logistical issues that may result from moving cadets to and from meal locations.
 - a. Type:
 - (1) lightweight;
 - (2) can be eaten warm or cold; and
 - (3) high energy.

b. Amount:

- (1) Sufficient quantity for each member for the duration of the activity, keeping in mind that climbing activities are very demanding therefore may require additional calories in concert with the three principles below:
 - (a) The colder the conditions, the more calories are required to keep the body warm.
 - (b) The heavier the equipment and the steeper the incline, the more nutrition the body needs to do that work.
 - (c) Appetite usually sharply increases around the third day of sustained work.
- (2) Plan accordingly:
 - (a) In warm days and nights, while operating out of a base camp or carrying small loads and not too much incline climbing, plan for 2500 to 3000 calories per person per day.
 - (b) In warm days and cool nights, travelling with full packs, long trips (more than five days) plan for 3000 to 3500 calories per person per day.
 - (c) In cool days and cold nights, travelling for long days with full packs, early spring and late fall, trips more than seven days plan for at least 3500 to 4500 calories per person per day.
 - (d) In cold days and extremely cold nights, mid-winter temperature and conditions, in alpine environments and extremely strenuous days require at least 4000 to 5000 calories per person per day.
 - (e) Although most people lose their appetite at high altitude, it is important for their safety to continue consuming an adequate amount of nutrition and fluids.
- (3) Include extra rations for a safety margin (usually at least one extra meal for a short trip and two meals for a five-day trip).
- (4) Carrying enough calories for demanding trips, especially when technical equipment must also be divided between the team members is a constant challenge for organizers and leaders for these activities. Pack weight soon becomes problematic.

c. Preparation:

- (1) Permission must be granted for open fires and open fire cooking (under supervision).
- (2) Firewood may not be available (alpine regions above the tree line and on glaciers) or if available should not be used because of the environmental impact of abusing such scarce resources in alpine regions.
- (3) All participants must be very confident on stove operations and repairs.
- (4) Rations should be easily prepared especially with low-level skilled cadets.
- (5) Climbing participants with experience and acquired skills may graduate to complete meal planning and preparation of fresh ration, special care must be taken to ensure adequate nutrition, calorie count, weight and against contamination.
- (6) Waste disposal must be in accordance with facilities and/or lease use agreements and shall follow the principles of Leave-no-trace as outlined in the Star Program.

d. Fluids:

- (1) Should be readily available in large quantities; climbers often restrict the amount of fluids they consume in order to reduce the weight they have to carry and the work they have to do to supply it. Every effort must be made to supply climbers with as much fluids as possible.

- (2) Weight is prohibitive, filter water as necessary, ensure streams and waterways are available, and the appropriate approved filter/purifier is used.
- (3) Melting snow and boiling water for purification may be necessary (allow rolling boil for five min – complications at altitude, be prepared) consider the extra fuel requirements.
- (4) Use chemical purification such as iodine and chlorine (bleach) sparsely and for short durations, following the manufacturer's directives. In some cases, specific chemical treatments are prescribed according to the conditions, follow the manufacturers directive and obtain medical approval. Note that chemical water treatments are contra-indicated for certain medical conditions.
- (5) Consider flavouring the water and including electrolyte replenishment as required.

TRANSPORTATION REQUIREMENTS

25. Safety vehicle and evacuation means may be the same vehicle. A safety vehicle must be present at a location as close as possible to the leader. The safety vehicle must have appropriate communications means to be in contact with both the trip leader and local authorities or the vehicle keys must be available to the climbing group. A first aid kit must be available in the safety vehicle at all times.

26. In wilderness settings where no land or water safety vehicle is accessible within three hours, proper arrangements must be made for helicopter evacuations through either search and rescue, the CF, parks services, police/fire department, alternate service provider or the national coast guard prior to the expedition. If this last option is used, proper communications must be established with the evacuation agency. In this case, communications will usually require satellite phone access and a prepared list of the appropriate phone numbers and emergency procedures. Plan ahead.

CADET SKILL LEVEL

27. The basic skills and application of climbing should be made available to every cadet that wishes to participate. The development of advanced climbing skills such as mountaineering and lead climbing however must be introduced progressively to cadets who demonstrate the desire to participate, in addition to a certain amount of ability and physical strength. Climbing can be introduced as a graduation skill to hiking and backpacking.

a. Qualification:

- (1) There are no qualifications necessary to take part in most climbing activities.
- (2) Some of the advanced levels of climbing activities require star level qualification prior to participation (refer to matrixes at Annex A).

b. Experience:

- (1) No skill specific experience is necessary for familiarization and basic participation to top roping, bouldering and ice climbing.
- (2) Climbers must have successfully participated in at least a one-day climbing activity prior to taking part in an overnight climbing trip.
- (3) Climbers must have participated in at least one backpacking activity carrying their own equipment and finishing with no great discomfort prior to participating in any overnight climbing activity.

c. Basic knowledge/technical skill:

- (1) Climbers must have participated in and demonstrated reasonable skill prior to taking part in a more physically/technically demanding climbing activity.
- (2) If resources and expertise are available, participants may attempt any classification of climbing technical skill one grade above what they have already achieved, e.g. attempt a 5.8 climb after demonstrating the ability to climb a 5.7.
- (3) Climbers must be able to climb at least a 5.7 reliably prior to being exposed to lead and multi-pitch climbing.

d. Basic knowledge and technical skills such as hiking and camping will often serve as a prerequisite to more advanced composite skills such as mountaineering and multi-day climbing expeditions.

e. Other selection criteria:

- (1) Cadet may be selected and/or matched in specific groups according to their qualifications, experience and level of physical fitness, so that:
 - (a) participants demonstrating the specific levels of the criteria listed above may be spread between groups in order to have many groups of similar strength; or
 - (b) participants of similar strength and ability may be grouped together and paired with activities designed specifically to challenge them.
- (2) Cadets must express a willingness to participate in mountaineering, lead and multi-pitch climbing prior to becoming participants for those expeditions.

PHYSICAL FITNESS

28. Some of the more advanced levels of climbing activities require certain levels of physical fitness assessed using the Army Cadet Fitness Test (ACFT) (refer to progression matrix at Annex A). Participants who have a poor strength to weight ratio may face severe difficulties.

TRAINING PROGRESSION

29. Refer to the climbing progression matrixes at Annex A.

QUALIFICATIONS, EXPERIENCE AND FITNESS OF LEADERS AND OPI

30. Refer to the independent sections for each specific activity requirements.

31. Many climbing service providers advertise that they are “certified” and/or “qualified” and often these terms are used interchangeably. This publication uses the following functional definitions:

- a. a recognized governing body issues a certification to a qualified candidate giving that person the license to use their skills according to the certification standard; and
- b. a qualification is awarded after proof of acceptable performance of a certain skill.

32. Numerous associations, clubs and outdoor adventure schools offer qualification courses. And although many qualifications are similar, there is usually no direct relationship and recognition between them. Organizers of climbing activities must be sceptical of issuing agency, equivalency and the currency of qualifications of guides and instructors. Ask for proof.

33. This publication and the CCM will recognize the ACMG certifications as the industry standard. ACMG certifications take into consideration qualifications, experience and technical skill. Unfortunately, ACMG certifications are most popular with guides from British Columbia, Alberta and Quebec. **It may be necessary for Region Commanders to approve other qualifications and experience but a reasonable equivalency assessment should be used as the basis for authorization.** Other national association certifications that are recognized by IFMGA such as the American Mountain Guides Association (AMGA) are also acceptable.

34. Note that the ACMG Alpine Guide supersedes the Rock Guide certification and the Mountain Guide supersedes all other ACMG certifications.

35. Mountain operations instructor CF qualification is equivalent to the ACMG Alpine Guide certification.

36. Required qualifications:

- a. at least one instructor present for climbing training sessions must hold a standard first aid qualification; and
- b. at least one instructor present for a climbing wilderness trip (remote area – more than three hours from emergency medical services) must hold a wilderness first responder qualification.

37. At least one leader must have command experience.

INSTRUCTOR TO CADET RATIOS

38. Three factors accepted by the climbing industry are used to identify the instructor/supervision requirements for climbing activities:

- a. type of climbing;
- b. intensity; and
- c. remoteness from Emergency Medical Services (EMS).

39. Refer to the activity specific matrixes at Annex A for instructor to cadet ratio requirements. In addition, **there must be at least two staff on every climbing activity.**

MAX AND MIN NUMBER OF PARTICIPANTS

40. Because of the impact on trails, routes and campsites, groups' sizes must be restricted. It is recommended that large groups be divided into smaller ones, depart at staggered intervals, use different trails and/or camp separately. Since the survival of the group will usually rely on teamwork, groups must have at least four members in rural conditions and six in isolated wilderness (remote) areas. Instructors should also assess the specific conditions at the climbing site and adjust the number of participants in each party. Refer to the activity specific matrixes at Annex A for details.

MANAGEMENT GUIDELINES

41. **Group Organization and Leadership for Climbing Activities.** Leadership and command responsibilities are often shared with experienced cadets in order to teach the necessary skills, develop self-confidence and teamwork. However, cadets will rarely possess the necessary skill and experience to act as leaders for climbing activities. Adult leaders must take responsibility for the following:

- a. Responsibilities of the leader:
 - (1) final check of weather forecast and avalanche conditions;

- (2) register with local authorities if required;
 - (3) distribute maps and navigational aids;
 - (4) check equipment, ensure all participants have required equipment and clothing:
 - (a) personal clothing and equipment;
 - (b) group equipment (tents, stoves, ropes, food, etc.); and
 - (c) redistribute equipment if required to even out conditions;
 - (5) set pace and keep track of group;
 - (6) route selection;
 - (7) set rope teams as required;
 - (8) set rendez-vous points as required;
 - (9) scout obstacles and difficult areas;
 - (10) establish turn around times;
 - (11) act as the first level of rescue/first aid;
 - (12) manage safety equipment; and
 - (13) ensure no one leaves the trailhead until all participants have returned.
- b. Responsibilities of the last person in a climbing group:
- (1) keep group together;
 - (2) alert for necessary rescue/first aid;
 - (3) assist in the management of safety equipment; and
 - (4) trail sweep on the way up and down.
- c. Group responsibilities:
- (1) keep groups in close enough proximity to communicate; spread out if necessary;
 - (2) maintain sufficient spacing and tempo;
 - (3) keep the next person up and down from you in sight, signal to stop if necessary;
 - (4) communicate with rope group;
 - (5) communication must carry up and down hill; and
 - (6) give the right of way to uphill travelling groups, very large groups or emergency evacuations.

42. **Rescues.** Leaders and instructors must be prepared for emergencies. All climbers must be trained in basic rescue and first aid so that they may help themselves in an emergency. Also, it is beneficial to develop a team approach to rescues and instruct climbing group team rescues; this practice is especially necessary in mountaineering. All climbers must be instructed in the following:

- a. The priority of rescue must always be:
 - (1) people; and
 - (2) life sustaining equipment (i.e. food, communications, first aid equipment, emergency beacons).
- b. Group responsibilities in a rescue:
 - (1) Alert other climbers of accident or dangerous conditions.
 - (2) Climbers must initiate whatever self-rescue or first aid is necessary and accept assistance.
 - (3) Other climbers are to assist in a rescue to the best of their abilities when it is safe to do so and when instructed.
 - (4) All climbers not involved in the rescue are to cease their activity, descend if instructed to do so, clear the path, gather as a group, and wait for further instruction.

43. **Wilderness Safety.** Many aspects of wilderness safety are important when climbing; they must however be emphasised in wilderness settings:

- a. Environmental conditions:
 - (1) altitude sickness (acute mountain sickness) progressing to high altitude pulmonary edema-HAPE or high altitude cerebral edema-HACE;
 - (2) coping with animals;
 - (3) coping with the weather;
 - (4) heat and cold injuries and illness;
 - (5) coping with poisonous plants; and
 - (6) water requirements.
- b. On route to a climb or mountaineering considerations:
 - (1) trail/march discipline;
 - (2) detached climber, lost or stranded group;
 - (3) accidental injuries and repetitive stress injuries, endurance problems (fatigue and dehydration);
 - (4) route/obstacle crossing options; and
 - (5) teamwork.

c. Camp safety:

- (1) fire and stove safety;
- (2) food storage and food loss;
- (3) terrain stability; and
- (4) equipment inspection and repair.

NECESSARY PLANNING

44. **Familiarity With Area.** At least one instructor, usually the trip leader, must be familiar with the climb sites. The climbs must be pre-scouted and pre-climbed. Only established routes are to be climbed.

45. **Planning.** The leader is ultimately in charge, even when some components of the organization of climbing activities is delegated, the leader must be familiar with all aspects of the organization and execution. Climbing leaders, especially those who are planning climbing trips and mountaineering, should develop a checklist using the factors listed in this chapter (the list below may be further developed locally), such as:

- a. Identify the objective/purpose of the activity, select an activity and the proposed route.
- b. Conduct appropriate recce: physical recce preferably, map recce, collect local knowledge and include:

- (1) start and finish points;
- (2) routes to and from the activity;
- (3) emergency evacuation points;
- (4) permits, licenses and reservation requirements;
- (5) camp sites, primaries and back-ups;
- (6) rendez-vous points;
- (7) alternates;
- (8) environmentally sensitive areas; and
- (9) identified danger areas, i.e. avalanche zones.

- c. Match the activity to the objective, to include:

- (1) intensity;
- (2) skill, fitness and experience required of participants;
- (3) number of participants, i.e. what is the ideal number of climbers for the specific activity, does it match the number of climbers proposed?
- (4) equipment concerns:
 - (a) equipment and clothing to be supplied to participants;

- (b) equipment and clothing the participants must possess; and
 - (c) necessary resources.
- d. Develop a trip itinerary or schedule to the objective, to include:
 - (1) distance and time required to reach the climb;
 - (2) distance and time required to execute the activity; and
 - (3) expected weather conditions, i.e. season typical.
- e. Develop a safety checklist to be used during the preparation and the execution of all climbing trips. It should contain the following points (this list is not an exclusive list. Safety checklists should be amended to match the activity planned):
 - (1) file a trip plan (itinerary, path, expected timings, size of group, skill of group, safety equipment included, communications, evacuation points) with local authority, training headquarters or use an on land safety vehicle;
 - (2) safety equipment required by law;
 - (3) first aid equipment appropriate to size of group and type of activity;
 - (4) equipment checked for serviceability;
 - (5) emergency and evacuation plan, including details on how to contact emergency medical services, and headquarters support;
 - (6) food and water;
 - (7) necessary living equipment;
 - (8) communications equipment and system of signals to be used within the group and to access outside help;
 - (9) wildlife consideration (i.e. bears, predators);
 - (10) leadership briefing detailing how the trip will be conducted;
 - (11) trip log; and
 - (12) risk assessment and management.
- f. Obtain authority, support and resources.
- g. File your trip plan with a rear party or contact.

TIME OF YEAR REGULATION

46. Although climates and geography differs in the many different regions of Canada, and it is possible to encounter snow out of season, hiking and backpacking in this instruction is restricted to the method of foot travel cross-country in the Canadian climate from spring to fall. Winter camping, snowshoeing, cross-country ski touring, mountaineering and glacier travel will be covered separately in their specific section starting at paragraph 61.

DURATION AND INTENSITY LEVEL OF THE ACTIVITY

47. Reasonable durations and intensity level according to age and training background has been developed in the progression matrixes at Annex A.

ENVIRONMENTAL CONSIDERATIONS

48. Only the safety of the participants will supersede the priority with which environmental stewardship is followed.

49. Waste management for personal hygiene, food scraps, food containers and human waste during climbing activities will follow camping skills of “minimum impact” at a minimum and “leave no trace” in optimum conditions.

50. The instructor to cadet ratios will limit group sizes. The maximum allowable visitors at campsites will limit size of tripping groups. Special considerations must be given to environmentally sensitive areas, minimal impact must be imposed onto any given environment. It is better to separate large groups into smaller units and space-out the departure of each smaller group so that no large, intrusive group of hikers block-up sections of a path or an area visited. Campsites (established or wilderness) should not have to support more than 15 visitors.

51. Climbing sites have been destroyed by abusive behaviour or left in poor condition they have been tarnished so that climbers are constantly reminded that the area is not pristine. All members of the CCM must aspire to climb clean:

- a. Leave the rock face (climbing route) the way you found it or better, don't install fixed pitons and bolts.
- b. Don't use even removable aids if they will damage the rock face.
- c. Climb the route the way it was published, do not add aids.
- d. Use chalk sparingly, wipe it off as much as possible.
- e. Use clean shoes.
- f. Don't disturb rocks or vegetation, replace them if you have to, don't tear off moss, if it's in your way, then you are not climbing the route correctly.
- g. Don't abuse natural anchor points and rope lines.

WEATHER CONSIDERATIONS

52. Know the weather forecast, learn how to forecast and react to weather. When travelling in lightning/storm prone areas and times of year, get weather updates every 12 hours.

53. It is common to hike or backpack in the rain, fog or snow but not to climb although some mountaineering can still take place. If the rain or fog interferes with reasonable visibility or strong winds accompany the rain, then it is necessary to take extra precautions. Spacing between participants should be diminished during periods of poor visibility, be aware that precipitation may affect water levels and the stability of the terrain being crossed. If dangerous terrain is scheduled for crossing, wait out the weather.

54. In case of lightning, shelter should be sought, if not in a building (cabin) then in a dense stand of trees. The lightning precautions below must be followed:

- a. Stay off high peaks, ridges, spires, narrow valleys and large bodies of water.
- b. A large group of trees is the best place to be.

- c. In case of storm forecast, do not plan to climb or travel in such formations as the ones listed in paragraph 54.a.
- d. Keep track of weather forecast either by communications or by forecasting the weather yourself; keep track of storm movements, in writing/chart preferably.
- e. Avoid shallow caves and overhangs, protection from the rain does not automatically protect from lightning.
- f. Keep a safe distance from metal and graphite objects (climbing equipment, walking poles, tripods or external framed packs); cache them away and retrieve them later if necessary.
- g. Change location if your hair stands on end.
- h. Insulate yourself from the ground using a backpack (without metal frame) or air mattress; minimize your height and crouch down feet together, do not lay down completely.
- i. If travelling as a group, spread out (10 m apart).
- j. Be prepared to administer appropriate first aid (i.e. CPR, electrical burn, blunt trauma, shock).

55. Although extremely cold or hot temperatures may not interfere directly with climbing, activities must be adapted accordingly; extra or specialized clothing and equipment may be necessary. Special consideration should be given to appropriate clothing such as outer layers used for wind and water protection, footwear and living equipment such as tents, sleeping bags and water containers. All participants must be trained to recognize signs of heat/cold-related illnesses, treatment and prevention.

LIMITATIONS

56. The following conditions shall be adhered to in the planning of a climbing activity and, where situations change, shall necessitate the cessation of a climbing activity when underway. These conditions include:

- a. At least one instructor must be familiar with the climb sites, they must be pre-scouted and pre-climbed. Only established routes are climbed.
- b. Any injury that stops a climbing team must stop the entire climbing party until the situation is resolved.
- c. Serious injuries warrant the evacuation of entire climbing parties.
- d. Be aware and plan accordingly during hunting seasons, environmentally sensitive areas or times of the year (e.g. mating season), avalanche season, warm days but frosty nights seasons/altitudes, rain or tornado season.
- e. Climbing will only occur during daylight hours. Mountaineering is sometimes required after dark or prior to sunrise in order to take advantage of weather conditions, it must take the low-visibility condition into consideration. Mountaineering in low visibility will not take place in dangerous conditions where a slip or fall could be dangerous, e.g. on a steep side of a hill or near waterways or crevasses. Light, communication and roping up must be used to keep the group together, e.g. headlamps, glow sticks, reflective tape and verbal communication.
- f. When travelling on slippery surfaces near water or crossing obstacles over water, backpackers must untie chest straps and waist belts so they can free themselves quickly if necessary.
- g. Climbing groups will not separate unless it was previously arranged.

- h. Belay lines must be used for any movement where the feet are 1 m above the ground, bouldering ceases at this point; crash mats or pads must be used for bouldering moves that take place higher than one step up the surface.
- i. Only on rare occasions, with intense supervision will cadets have the necessary skill, experience and physical fitness to climb above a 5.10-class rock (top rope, lead or multi-pitch).
- j. Only on rare occasions, with intense supervision will cadets have the necessary skill, experience and physical fitness to climb above V2-class bouldering.
- k. Only on rare occasions, with intense supervision will cadets have the necessary skill, experience and physical fitness to climb above a W5-class ice face.
- l. Some form of acclimatization is required for all climbs above 3000 m.
- m. A structured and assessed acclimatization is required for all climbs above 4000 m.
- n. Regardless of acclimatization, teenagers age 15 and below will not climb above 3500 m and teenagers age 19 and below will not normally climb above 5000 m.
- o. Wading into water up to a maximum of mid-thigh depth in wet river crossings with currents (refer to river crossing at Annex C).
- p. Minimum ice thickness requirements for crossing frozen lakes and rivers at Annex D.
- q. Reliable communications shall be maintained in case of a requirement for emergency evacuation.

RISK ASSESSMENT AND MANAGEMENT

57. Certain inherent risks exist in all climbing activities, e.g. physical injury such as sprained or broken ankles, cold illnesses and impact wounds; other risks include equipment loss or damage. The safety regulations set for the Canadian public, service members and CCM members have for purpose; to reduce the inherent and accidental risks involved with activities developed around the wilderness. The following lists some points to be considered in risk assessment and management of climbing activities:

- a. participants: number, age, qualifications, experience;
- b. temperature and weather;
- c. equipment: necessary, required, desired, personal and group;
- d. skill level, qualifications and experience of the leader/instructor; and
- e. support and resources.

DEBRIEF

58. The personal challenges each participant will meet can be discussed in a learning/supportive environment. Group leaders should be especially aware of difficulties some participants may have encountered and use judgment in adapting group debriefs. It may be more appropriate to discuss some issues in private. Depending on the intensity of the experience, some participants may require some personal time or a team activity immediately following activity. Staff, especially developing leaders, will require special attention and debrief.

59. In many ways, at least perceived by the participants, climbing is often considered more individual than a team activity. When teams evolve, they are relatively small and their experience can be very intense. The debrief should reflect this duality and possibly separate individual and team goals, skills and accomplishments.

LOGBOOK

60. Many participants may wish to keep a personal logbook or journal of their climbing activities, qualifications, experience and trips. Such a personal logbook may be used to establish suitability for future climbing/mountaineering activities, courses or instructor positions, in such a case climbers should have their logbook signed by an instructor in order to attest to the climber's experience. Trip and instruction logbooks are an important part of recording and reporting climbing activities. OPIs, leaders and instructors must keep a logbook of the activities under their charge, as it becomes a legal record of the activity.

SPECIFIC TOP ROPE SAFETY STANDARDS

EQUIPMENT REQUIREMENTS

61. In addition to the equipment requirements at paragraph 21., top roping groups must have the following:
- a. One CE/UIAA approved helmet for every climber, instructors and anybody else close to the climb site.
 - b. At least two ropes of 10.5 mm CE/UIAA approved.
 - c. Belay devices must be inspected prior to use, often because they are a source of friction; they are particularly susceptible to developing sharp edges and cracks if impacted since they are usually tempered during manufacturing. At least three appropriate belay (friction) devices are requested for the activity. The following types are recommended:
 - (1) ATCs;
 - (2) tubers;
 - (3) stitch plates with springs; or
 - (4) GriGris.
 - d. The belay devices below are acceptable but the four above are preferable:
 - (1) figure 8s;
 - (2) carabiner break system;
 - (3) munter hitches; or
 - (4) body belays.
 - e. Ample screwgate locking type carabiners with manufacturer-minimum tensile breaking strength of 22.22 kN (5000 lb).
 - f. Non-screwgate carabiner may only be used for non-load bearing purposes.
 - g. Ample 24-mm (1-inch) nylon tubular sling for anchors, improvised chest harnesses.

h. Harnesses:

- (1) optimum – seat harness – any manufacturer – UIAA/CE approved w/chest harness as required; and
- (2) minimum – improvised Swiss seat w/improvised chest harness as required.

i. Boots/shoes:

- (1) optimum – any manufacturer – lug sole, ankle support, all leather, steel shank; and
- (2) minimum running shoes and CF combat boots.

INSTRUCTOR QUALIFICATION

62. Top roping:

- a. Rock face: At least one ACMG Rock Guide or RCSU CO approved equivalent must be on site for supervision.
- b. Minimum qualification for each climbing instructor: ACMG Assistant Rock Guide or RCSU CO approved equivalent.
- c. Artificial wall: Same as paragraph a. or ACMG Gym Instructor Level 1 or RCSU CO approved equivalent.

SPECIFIC BOULDERING SAFETY STANDARDS

EQUIPMENT REQUIREMENTS

63. In addition to the equipment requirements of the general section of this chapter, bouldering groups must have the following:

- a. One CE/UIAA approved helmet for every climbers.
- b. Crash mats and/or spotters.

INSTRUCTOR QUALIFICATION

64. **Bouldering**

- a. At a low-intensity level, bouldering is very much scrambling and there is no requirement for a skill specific qualification. Although CIC officers are not specifically trained for bouldering during the Abseil Instructor and MOC Land Course, these courses offer a general understanding of safety measures, danger recognition and situation awareness, CIC officers with the following qualifications and experience may carry out bouldering activities:
 - (1) artificial and natural environment up to V0: Minimum qualification for CIC officers – Abseil Instructor and MOC Land; and
 - (2) CIC officers must also have experience with the use of climbing mats, spotting and climbing techniques/principles, see limitations and Annex B.
- b. V0 to V2: Minimum qualification ACMG Assistant Rock Guide, ACMG Gym Instructor Level 1 or RCSU CO approved equivalent.

SPECIFIC LEAD AND MULTI-PITCH CLIMBING SAFETY STANDARDS

NOTE

Cadets must be able to climb at least at a 5.7-level prior to being introduced to lead and multi-pitch climbing.

EQUIPMENT REQUIREMENTS

65. In addition to the equipment requirements of the general section of this chapter, lead and multi-pitch groups must have the following:

- a. One CE/UIAA approved helmet for every climber, instructors and anybody else close to the climb site.
- b. At least two ropes of 10.5 mm CE/UIAA approved.
- c. Belay devices must be inspected prior to use, often because they are a source of friction; they are particularly susceptible to developing sharp edges and cracks if impacted since they are usually tempered during manufacturing. At least three appropriate belay (friction) devices are requested for the activity. The following types are preferably recommended:
 - (1) ATCs;
 - (2) tubers;
 - (3) stitch plates with springs; or
 - (4) GriGris.
- d. The belay devices below are acceptable but the four above are preferable:
 - (1) figure 8s;
 - (2) carabiner break system;
 - (3) munter hitches; or
 - (4) body belays.
- e. Ample screwgate locking type carabiners with manufacturer-minimum tensile breaking strength of 22.22 kN (5000 lb).
- f. Non-screwgate carabiner may only be used for non-load bearing purposes.
- g. Ample 24-mm (1-inch) nylon tubular sling for anchors, improvised chest harnesses.
- h. Harnesses:
 - (1) optimum – seat harness – any manufacturer – UIAA/CE approved w/chest harness as required; and
 - (2) minimum – improvised Swiss seat w/improvised chest harness as required.

i. Boots/shoes:

- (1) optimum – any manufacturer – lug sole, ankle support, all leather, steel shank; and
- (2) minimum running shoes and CF combat boots.

INSTRUCTOR QUALIFICATION

66. Lead and multi-pitch climbing:

- a. Minimum qualification: ACMG Rock Guide or RCSU CO approved equivalent.

SPECIFIC ICE CLIMBING SAFETY STANDARDS

EQUIPMENT REQUIREMENTS

67. Eye protection of some kind, usually sunglasses or goggles.

INSTRUCTOR QUALIFICATION

68. Ice climbing:

- a. Minimum qualification: ACMG Alpine Guide or RCSU CO approved equivalent.

SPECIFIC ABSEIL SAFETY STANDARDS

NOTE

All abseil sites will be approved by the applicable RCSU CO before use.

EQUIPMENT REQUIREMENTS

69. In addition to the equipment requirements of the general section of this chapter, abseil groups must have the following:

a. Helmets:

- (1) optimum – any manufacturer – approved by UIAA/CE.

b. Abseil, belay and rescue ropes:

- (1) optimum – any manufacturer – kernmantel of 10.5 mm – UIAA/CE approved; and

- (2) minimum – CFSS – nylon three-strand 7/16 inch diameter.

c. Slings – minimum of 1000 kg strength:

- (1) any manufacturer – kernmantel of 7 mm or 1-inch webbing – UIAA/CE.

d. Prusik loops – any manufacturer – kernmantel of 7 mm.

- e. Carabineers – screwgate locking type – any manufacturer – minimum standards for load bearing carabineers, two person loads, 22.22 kN (5000 lb) and UIAA/CE approved or accredited.
- f. Figure 8 descender – any manufacturer.
- g. Gloves, leather, size medium (NSN 8415-21-510-5233), size large (NSN 8415-21-510-5232).
- h. Boots/shoes:
 - (1) optimum – seat harness with chest harness – any manufacturer – UIAA/CE approved; and
 - (2) minimum running shoes and CF combat boots.
- i. Harnesses:
 - (1) optimum – seat harness with chest harness – any manufacturer – UIAA/CE approved; and
 - (2) minimum – improvised Swiss seat w/improvised chest harness as required.

SAFETY EQUIPMENT

70. In addition to the safety equipment requirements of the general section of this chapter, the following is required at each site:

- a. First aid kit, suitable for number of personnel on site.
- b. Stretcher:
 - (1) optimum – litter, stokes (NSN 6530-21-809-9755) w/spinal board (or NSN 6530-21-868-5609); and
 - (2) minimum – litter, folding (NSN 6530-21-108-1610) w/spinal board (or NSN 6530-21-868-5609).

ANCHOR STANDARDS

70A. CIC abseil instructors shall ensure that standards for anchor points conform to the following general guidelines:

- a. A natural anchor will meet the following requirements:
 - (1) A tree (alive) able to sustain considerable weight (6-inch diameter).
 - (2) A secure rock outcrop or boulder free of abrasive edges or padded to avoid damage to anchor slings.
- b. A man-made anchor will meet the following requirements:
 - (1) Free of rust and corrosion if metal and solid and not rotted if wooden.
 - (2) Be certified to sustain a shock load of 22.22 kn in any direction.

SAFETY CHECKLIST

71. The following shall be observed on all abseil training sites:

- a. An abseiler shall be belayed at all times.
- b. The abseil instructor shall designate an appropriately sized area directly below the decent line as a “rock fall” zone in which helmets shall be worn.
- c. Abseils shall be under direct supervision of a qualified instructor although, to belay, an assistant may be appointed by the on-site instructor.
- d. Belayers shall have been briefed and have dry-practiced belay technique prior to belaying. The belayer is to be secured to a different anchor than the abseil rope and shall be wearing suitable gloves.

e. All abseil locations are to be inspected and swept clear of any debris prior to use.

e1. D E L E T E D

f. Participants not abseiling are to wait in a designated area clear of top or bottom of the abseil location.

g. Communication between the abseiler and instructor shall be maintained throughout the descent and communications to the belayer is to be unobstructed.

h. All rock faces and all man-hand made sites (other than CF towers) require approval from RCSU COs.

i. D E L E T E D

INSTRUCTOR QUALIFICATION

72. Notwithstanding the qualifications of the instructor, it is essential that approving authorities satisfy themselves that the instructor has sufficient and suitable leadership qualities to match the scope of the abseil training.

73. CIC abseiling instructor qualification shall be obtained by passing the Abseil Instructors Course. Abseil activities conducted by CIC abseiling instructors shall **strictly adhere** to the standards for set-up and conduct of abseil training outlined in A-CR-050-822/PH-001, *Training Plan Cadet Instructors Cadre Abseil Instructors Course*, trained during the Abseil Instructors Course. Cadets abseiling with a CIC abseiling instructor shall wear both a seat and chest harness.

74. The following abseil qualifications are acceptable:

a. Guide or assistant guide (summer) – Association of Canadian Mountain Guides (ACMG).

b. Instructor – Fédération québécoise de la montagne (FQM).

c. D E L E T E D

d. D E L E T E D

e. CIC abseil instructors course.

f. D E L E T E D

74A. D E L E T E D

74B. DELETED

74C. DELETED

SPECIFIC MOUNTAINEERING SAFETY STANDARDS

NOTE

Cadets must have participated in at least one overnight Class 2 YDS trip prior to being introduced to mountaineering.

INSTRUCTOR QUALIFICATION

75. Mountaineering:

- a. As discussed in the description of mountaineering, foot travel in alpine areas (with no ice, glaciers or technical climbing) is considered the bridge between hiking/backpacking and mountaineering, the minimum qualification for CIC officers to lead non-ice/no technical climbing mountaineering activities (also considered alpine backpacking including some Class 3 scrambling/bouldering) is the MOC Land.
- b. In addition to qualification at paragraph a., CIC officers must also have at least 10 days of backpacking experience in similar conditions as the ones expected on the expedition.
- c. It is recommended that leaders hold the ACMG Backpacking Hiking Guide qualification for Class 3 travel (refer to Chapter 7).
- d. All mountaineering activities that include ice and/or glacier travel must have at least one ACMG Alpine Guide; the other instructors must be approved by the ACMG Alpine Guide having demonstrated acceptable skill and experience.
- e. All mountaineering activities that include ice/glacier/remote wilderness or technical climbing may only be delivered by ACMG Alpine Guides.

ANNEX A
PROGRESSION MATRIX

Age	Star Level	Intensity of the Activity	Delivery Method	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-18	Green to Gold (Note 1)	Famil	Day Instruction	Up to 5.4	1 to 7	None	Max 15 Min 4	1:4	LHQ/Zone	Local SME Contract With Trade	Detachment/ Region
14-17	Silver to Gold (Note 1)	Basic (Note 2)	Day Instruction	Up to 5.7	1 to 8	Bronze	Max 10 Min 4	1:4	LHQ/Zone	Local SME Contract With Trade	Detachment/ Region
16-17	Gold (Note 1)	Intermediate (Note 3)	Overnight	Up to 5.9	1 to 8	Silver	Max 10 Min 4	1:3	Zone/Region	Local SME Contract With Trade	Detachment/ Region
17-18	NSCE & MC	Advanced (Note 4)	Overnight	Up to 5.10 (Note 5)	1 to 8	Silver	Max 10 Min 4	1:3	Zone/Region	Local SME Contract With Trade	Detachment/ Region/ National
<p style="text-align: center;">NOTES</p> <ol style="list-style-type: none"> 1. Gold Star level in this chart includes NSCE and MC unless those levels are separately identified. 2. Climbing instructor may assess a climber's proportional strength and natural ability and authorize the climber to participate in certain levels of climbing. 3. Climbers with excellent skills, strength and experience may attempt any classification of rock climbing one grade above what they have already achieved. 4. Climbers may be introduced to lead and multi-pitch rock climbing at this level – subject to instructor approval. Climbers must be able to climb at least at a 5.7-level prior to being introduced to lead and multi-pitch climbing. 5. Climbers with excellent skills, strength and experience may attempt any classification of rock climbing above 5.10 – subject to instructor approval. 											

Figure 5A-1 (Sheet 1 of 2) Rock Climbing (Top Rope) Progression Matrix

Rock Climbing Technical Rating

Class 5.0 – 5.4: Novice vertical climb, two hand and two footholds are available for almost every move.

Class 5.5 – 5.6: Some climbing technique is required, four holds may not be obvious.

Class 5.7: At least one move on the climb is missing one hand or foothold.

Class 5.8 – 5.9: Climbing shoes are required because holds are much smaller, good skill and strength is required.

Class 5.10: Excellent skills and strength required, has moves that may only have one good hold.

Class 5.11 – 5.14: Very advanced level of skill and strength required, expert level, with overhang(s) in the later range of this rating (5.13 and up).

Safety Skills

- 1 Displays good response and behaviour to direction
- 2 Can use safety equipment properly
- 3 Can tie into an already established rope system
- 4 Performs the climber – belayer safety check prior to every climb
- 5 Can use climbing communication
- 6 Can activate rescue communications
- 7 Recognizes danger and backs off
- 8 Can belay

Figure 5A-1 (Sheet 2 of 2) Rock Climbing (Top Rope) Progression Matrix

Age	Star Level	Intensity of the Activity	Delivery Method	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-18	Green to Gold (Note 1)	Famil	Day Instruction	W2	1 to 7	None	Max 15 Min 4	1:3	LHQ/Zone	Local SME Contract With Trade	Detachment/ Region
14-17	Silver to Gold (Note 1)	Basic (Note 2)	Day Instruction	Up to W3	1 to 8	Bronze	Max 10 Min 4	1:3	LHQ/Zone	Local SME Contract With Trade	Detachment/ Region
16-17	Gold (Note 1)	Intermediate (Note 3)	Day Instruction	Up to W4	1 to 8	Silver	Max 10 Min 4	1:3	Zone/Region	Local SME Contract With Trade	Detachment/ Region
17-18	NSCE & MC	Advanced (Note 4)	Day Instruction	Up to W5	1 to 8	Silver	Max 10 Min 4	1:3	Zone/Region	Local SME Contract With Trade	Detachment/ Region/ National
<p style="text-align: center;">NOTES</p> <ol style="list-style-type: none"> 1. Gold Star level in this chart includes NSCE and MC unless those levels are separately identified. 2. Climbing instructor may assess a climber's proportional strength and natural ability and authorize the climber to participate in certain levels of climbing. 3. Cdts and staff with excellent skills, strength and experience may attempt any classification of ice climbing one grade above what they have already achieved. 4. Participants may be introduced to lead and multi-pitch ice climbing at this level – subject to instructor approval. 											

Figure 5A-2 (Sheet 1 of 2) Ice Climbing (Top Rope) Progression Matrix

Ice Climbing Technical Rating

W is often used to identify the technical grade water ice (waterfall or melt water) in contrast to glacier ice.

W1: A frozen almost horizontal surface, a lake or streambed.

W2: A pitch with short sections of ice up to 80°; many opportunities for protection and good anchors.

W3: Sustained ice up to 80°; the ice is usually good, with places to rest; skill is required to place protection and anchors.

W4: A sustained pitch that is vertical or slightly less than vertical; may have special features such as chandeliers and run-outs between protections.

W5: A long, strenuous pitch; possibly 50 m, 85° to 90° vertical, very few rests stops; shorter pitches may be featureless, good skill at placing protection is required.

W6: At least 50-m pitch, vertical ice; may be of poor quality, very good climbing and protection position skill required.

W7: At least 50-m pitch, vertical or overhanging ice, dangerous stability, extremely difficult pitch physical and mental stress.

W8: Most difficult ice climbing ever done, highly technical and physically demanding.

Safety Skills

- 1 Displays good response and behaviour to direction.
- 2 Can use safety equipment properly.
- 3 Can tie into an already established rope system.
- 4 Performs the climber – belayer safety check prior to every climb.
- 5 Can use climbing communication.
- 6 Can activate rescue communications.
- 7 Recognizes danger and backs off.
- 8 Can belay.

Figure 5A-2 (Sheet 2 of 2) Ice Climbing (Top Rope) Progression Matrix

Age	Star Level	Intensity of the Activity	Delivery Method	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-18	Green to Gold (Note 1)	Famil	Day Instruction	Approx 25 ft	1 to 7	None	Max 20	1:1 (Note 2) 1:6 (Note 3)	LHQ/Zone	Local SME Contract With Trade	Detachment/ Region
12-18	Green to Gold (Note 1)	Basic	Day Instruction	Approx 45 ft	1 to 7	None	Max 20	1:1 (Note 2) 1:6 (Note 3)	LHQ/Zone	Local SME Contract With Trade	Detachment/ Region
13-18	Red to Gold (Note 1)	Basic/ Intermediate	Day Instruction	Approx 90 ft	1 to 7	None	Max 20	1:1 (Note 2) 1:6 (Note 3)	LHQ/Zone	Local SME Contract With Trade	Detachment/ Region
16-18	Silver to Gold (Note 1)	Intermediate	Day Instruction/ Overnight	Max 120 ft	1 to 7	None/Bronze	Max 20	1:1 (Note 2) 1:6 (Note 3)	LHQ/Zone/ Region	Local SME Contract With Trade	Detachment/ Region
17-18	NSCE & MC	Advanced	Day Instruction/ Overnight	Multi-pitch	1 to 11	Bronze/Silver/ Gold	Max 20	1:3 (Note 4)	Zone/Region	Local SME Contract With Trade	Detachment/ Region/ National

NOTES

- Gold Star level in this chart includes NSCE and MC unless those levels are separately identified.
- 1:1 Ratio.** For any abseil utilizing a **single pitch top belay system** with beginner abseilers, there must be one guide to each abseiling participant.
- 1:6 Ratio.** For any abseil utilizing a **single pitch top belay system** and where abseilers have provided training/documentation/briefings/verbal evidence supported by a visual check from the instructor/guide, he or she may deem participants to be competent belayers. They may then be permitted to belay with a backup belayer. Where this is the case, the instructor/guide may supervise two independent descent/ropes. Where **single bottom belayers** are to be used, they must be adequately trained and no more than three ropes should be used.
- 1:3 Ratio. Multi-pitch abseils** are those for which the participants are required to be anchored at changeovers. Where a changeover occurs at an area considered being large/safe and which has easy escape from the ledge, this is considered to be a multiple single pitch abseil. For multi-pitch abseil there must be a minimum of two instructor/guides per multi-pitch comprised of at least one instructor per top of each pitch. Normally the ratio should not exceed three participants to each qualified leader on the cliff. These abseil must be managed carefully to prevent overcrowding at the changeover and to ensure that the anchors are sufficient.

Figure 5A-3 (Sheet 1 of 2) Abseiling Progression Matrix

Safety Skills

- 1 Displays good response and behaviour to direction.
- 2 Can use equipment properly.
- 3 Can tie into an already established rope system.
- 4 Performs the abseiler – belayer safety check prior to every abseil.
- 5 Can use climbing/abseil communication.
- 6 Can activate rescue communications.
- 7 Recognizes danger and backs off.
- 8 Can belay.
- 9 Previous single pitch experience.
- 10 Previous intermediate single pitch experience.
- 11 Is aware and understands what action must be taken according to emergency strategy in the event that the instructor/guide becomes injured or incapacitated.

Figure 5A-3 (Sheet 2 of 2) Abseiling Progression Matrix

Age	Star Level	Intensity of the Activity	Delivery Method	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
14-16	Silver to Gold (Note 1)	Basic (Note 2)	Day Trip/Overnight Trip	No Snow, Ice Glacier or Technical Climbing	1 to 6	Bronze	Max 20 Min 6	1:5	LHQ/Zone	CIC/CIs	Detachment/ Region
15-17	Gold (Note 1)	Intermediate (Note 2)	Overnight Trip	Alpine and Glacier Conditions (Note 3)	1 to 12	Bronze	Max 20 Min 6	1:4	Zone/Regional	Local SME Contract With Trade	Region
16-17	NSCE & MC	Advanced (Note 2)	Wilderness Trip	Alpine and Glacier Conditions (Note 3)	1 to 12	Silver (Note 4)	Max 20 Min 6	1:4	Region/ National	Local SME Contract With Trade	Region/ National
17-18	NSCE & MC	Advanced (Note 2)	Wilderness Trip	Alpine and Glacier Conditions (Note 3)	1 to 12	Silver (Note 4)	Max 20 Min 6	1:4	Region/ National	Local SME Contract With Trade	Region/ National

NOTES

1. Gold Star level in this chart includes NSCE and MC unless those levels are separately identify.
2. Participants must have accomplished at least one overnight trip in Class 2 terrain (YDS) prior to participating in mountaineering activities.
3. Altitude and acclimatization requirements set in limitations.
4. Climbing instructor may assess a climber's proportional strength and natural ability and authorize the climber to participate in certain levels of climbing.

Figure 5A-4 (Sheet 1 of 2) Mountaineering and Glacier Progression Matrix

Safety Skills

- 1 Displays good response and behaviour to direction.
- 2 Can use safety equipment properly.
- 3 Can tie into an already established rope system and performs the climber – belayer safety check prior to every climb.
- 4 Can use climbing communication.
- 5 Recognizes danger and backs off.
- 6 Can belay.
- 7 Has participated in crevasse rescue training.
- 8 Has been trained to self-arrest.
- 9 Can activate and assist in a rescue.
- 10 Has participated in avalanche training including recognizing avalanche paths, zone of hazards and safety zones.
- 11 Can use a probe – function as part of an avalanche rescue team.
- 12 Can use and test avalanche transceiver.

Figure 5A-4 (Sheet 2 of 2) Mountaineering and Glacier Progression Matrix

ANNEX B

SPOTTING

GENERAL

1. Spotting is one of the safety systems used in climbing activities that take place low to the ground such as bouldering, low elements of ropes/challenge courses and initiative games. Instead of using ropes to hold up the weight of the climber, a person below helps support and directs the climber's head, face, neck and spine away from danger in case of a fall. Although when a climber is falling, he will call for somebody to "catch" him, the mechanism is much more one of absorbing and re-directing towards somewhere safe (except in activities such as the trust fall!).

2. In preparation for one of these activities, obstacles that can, should be removed and replaced prior to leaving the site (rocks, branches or kit bags). Other obstacles such as protruding boulders and tree roots should be padded using a portable mat. In order to increase site awareness, climber and spotters should make a mental note of the location of obstacles that cannot be cleared away.

SPOTTING PRINCIPLES

3. Instructors shall ensure that all participants are briefed on the following spotting principles:
- a. Climber's head must never be below the feet, this way if they fall, the lower portion of the body will touch the ground first, absorbing some of the impact.
 - b. Spotters must be ready to act and be proactive with their body position, anticipating the possibility of a fall, focusing on the task.
 - c. Spotters must stay close to the participants, the less time the body spends "falling", the less load there is to be absorbed.
 - d. Often climbers will avoid a fall by being pushed back into position by the spotter.
 - e. When the climber is ready, he explains what he will do on the climb, the route he will take and expected difficulties.
 - f. Climber to spotter weight ratio is important, people should be matched for size as much as possible.
 - g. If the climber has more than one spotter, they must agree on who will do what prior to the climber getting off the ground.

SPOTTING COMMUNICATION

4. Each climber has his own assigned spotter(s). They communicate using a pre-determined response dialogue such as the one below:

- a. Climber asks: "Spotter(s) ready?"
- b. Spotter(s) respond: "Ready".
- c. Climber: "Climbing".
- d. Climber: "Watch me" – (meaning – this is an especially difficult move).
- e. Spotter(s): "Watching" – (meaning – we were watching you all along but now we know we have to be extra alert, we have moved in close and are ready to catch you).
- f. Climber: "Falling".

- g. Spotter(s): “Fall” – (meaning – we’ve got you).
- h. Climber: “Coming down”.
- i. Spotter: “Watching”.

SPOTTING SKILLS

- 5. Instructors shall demonstrate, have spotters practice, and shall monitor the following spotters skills:
 - a. Feet are shoulder width apart, one foot slightly in front of the other.
 - b. Hands are up and out (ready to grasp centre of gravity – from waist to rib cage) mirroring to movements of the climber.
 - c. Transfer weight to the ball of the feet especially on the forward leg, leaning slightly forward.
 - d. Head retracted back to avoid getting hit by flailing arms and hands.
 - e. Watch centre of gravity, not hands and feet.
 - f. Fingers together, thumbs in, hands cupped using the palm to catch/support.
 - g. If climber loses one or two holds but is still on the climb, a push on the shoulder blade (or thigh) will usually give support and allow the climber to regain proper footing or holds.
 - h. If climber is falling feet first, grab by the hips and slow down the fall.
 - i. If climber is falling at an angle, grab under the arms and steer the shoulders to a good landing spot, preferably where the crash pad was positioned, head and neck will follow – remember your No. 1 priority – head, face, neck and spine.

ANNEX C

RIVER CROSSINGS

1. Depending on the season, trails and backcountry backpacking/mountaineering activities can come across small waterways and there may be a need to cross rivers. Ultimately, there is always the choice not to cross, find another way or turn back if the conditions are too dangerous. **During hiking and backpacking activities, CCM members may cross creeks up to 30 cm (1 ft) deep if the following conditions are met:**

- a. Water temperature minimum of 5°C.
- b. If river is frozen, refer to ice safety at Annex D.
- c. Participants can see the bottom.
- d. No great current.
- e. Footing looks secure (no great holes, slick slippery surfaces, tumbling river debris).
- f. No strainers or sweepers downstream.
- g. Use footwear. Because wet footwear can quickly lead to blisters, there must be a plan in place to avoid hiking with wet boots (change of socks, plastic bags, change of footwear).
- h. D E L E T E D

CROSSING RIVERS DEEPER THAN 30 cm AS PART OF MOUNTAINEERING

2. Scout the Area Properly

- a. It may be necessary to get to higher ground in order to survey large sections of the river.
- b. It may be necessary to travel far up or downstream in order to find an appropriate river crossing.
- c. Consider travelling upstream and crossing tributaries since they should each have less flow than collecting waterways.
- d. Melting north facing glacier streams may not flood as much as south/sun facing slopes.
- e. Maps can help you identify gradient, and approximate width of rivers and creeks.
- f. The group needs to assess “what will happen if one or more of us washout?” does it mean wet boots, a twisted ankle, loss of equipment or worse.
- g. Some participants may have to help others by shuttling packs, and holding each other to get across, everybody needs to be comfortable with the level of challenge.

3. **Dry River Crossings.** Crossing on logs, fallen trees, rocks or other natural bridge across waterways in an attempt to keep dry is considered dry crossing. Because there is a potential for staying dry, some people attempt dry crossings in situations where their judgment would keep them out of the water at a wet crossing. Also because height is often a factor in dry river crossing attempts, falling-in is usually much more dangerous than wading in. Most times, the natural bridge itself can be the greatest source of danger since it quickly becomes a strainer when people fall upstream:

- a. Logjams and beaver dams have been known to hold up the weight of horses and their riders but most often they are not so stable. Often, logjams and beaver dams are held up by a few critical pieces of wood and if those logs are displaced in the crossing, the logjam can no longer hold up the pressure of the water pushing against it. Logjams have been known to open like floodgates. Swimming with river debris and sudden currents can be very hazardous.
- b. One person without their pack, holding on to a rescue rope should test any natural bridge, if it shifts, sinks or deforms under the weight, find another way. Often the calm eddy downstream of the logjams can be crossed, although it will be wet, it is usually more secure.
- c. Snow and ice bridges are severely weakened in the spring especially during sunny days, the snow or ice melted over the course of a few hours can be critical. These bridges must be probed and safety lines must be used if instructors suspect any danger (refer to ice safety at Annex D).
- d. Rock hopping may be possible especially if rocks are fairly flat, clean and close together, unfortunately a slip from rock hopping usually end up getting the hiker wet and may leave an impact wound, many fractures are attributed to an attempt to remain dry.

4. **Wet River Crossings.** Most paddlers will attest that water usually behaves predictably and it is important to remember some principles when wading through rivers or creeks:

- a. At a constant gradient, narrow channels have faster water.
- b. The deeper the water, the slower the current must be to wade in.
- c. Consider the downstream hazards in case of a washout, i.e. rapids, waterfalls and strainers.
- d. Spring floods increase the water level burying dangerous obstacles creating strainers.
- e. Look for entrance and exit points where the banks have not undercut, or slippery slopes.
- f. Crossing at a diagonal angle, allowing for some downstream travel will decrease the amount of work you will have to do against the current.
- g. In mountain streams, water levels rise in the afternoon after the sun has melted snow feeding into the stream.

5. **River Crossing Skills**

- a. Pack belts must be untied as per the shallow water crossing safety standards seen in hiking.
- b. Ensure backpacks are compact and not top heavy, make sure there is nothing dangling around your neck.
- c. Keep your feet shoulder width apart, face upstream and lean into the current.
- d. Remove clothing that will increase drag, i.e. wind pants.
- e. Keep your hands free or use a stick to make a tripod.
- f. Learn the techniques and the advantages of the tripod and group crossings.
- g. Have the largest, most experienced, strongest person lead out into the current, create mobile eddies for small, unstable or injured hikers.

- h. Post spotters with rescue ropes downstream.
- i. Practice on dry land or shallow water first.
- j. Only wade in up to mid thigh in currents.
- k. Only wade up to waist in very slow currents.
- l. All participants must know the following immediate action if they washout:
 - (1) Ditch the pack.
 - (2) Face downstream, floating on the back with feet pointed downstream and up in front of you and back paddle with arms (river swimming position).
 - (3) Point the shoulder to the shore you want to go (closest shore) and paddle hard to get yourself out of the water ASAP.
 - (4) Use the safety rope.
 - (5) All other participants get out of the water and assist the washout person, track the pack if possible.

ANNEX D

ICE SAFETY

1. Fresh water ice safety is an important aspect of mountaineering. The information below has been gathered from The Treasury Board of Canada, *Safety Guide for Operation Over Ice*, and The Lifesaving Society, *Ice Myths and Cold Realities* and *Ice: The Winter Killer*.

- a. Not all ice has the same strength – blue, clear or dark ice is the strongest, white opaque ice (that has snow or oxygen bubbles entrapped) is considered half as strong (therefore must be twice as thick to support the same weight).
- b. Do not assume ice is the same thickness throughout a frozen surface – it takes longer for the middle of a river to freeze than the edges.
- c. The current of a river will also affect the ice thickness, the stronger the current (e.g. in the middle compared to the edges), the thinner the ice.
- d. Heavy snow covers insulates the ice, reducing its growth, i.e. expected thickness.
- e. Ice must be supported by water in order to be strong, if water level has dropped under the ice, it has much less load bearing strength.
- f. Weight spread out is easier to bear than single spot heavy loads.
- g. On ice, stationary loads require thicker ice than a load in motion.
- h. Moving vehicles on ice create a wave (like a boat wake) under the ice, the vibration and the pocket of air under the ice make much more vulnerable to break through.
- i. Cracks may or may not affect the ice strength.
- j. Spring ice conditions are always suspect.

2. **Minimum Required Thickness for Load Bearing Using Good Clear Ice**

- a. One to three people walking: 10 cm (4 inches).
- b. Snowmobile (or five people standing together): 15 cm (6 inches).
- c. Car (or 15 people standing together): 20 cm (8 inches).

ANNEX E

CLIMBING CODE¹

1. A climbing party of three is the minimum, unless adequate prearranged support is available. On glaciers, a minimum of two-rope teams is necessary.
2. Rope up on all exposed places and for all glacier travel. Anchor all belays.
3. Keep the party together, and obey the leader or majority rule.
4. Never climb beyond your ability and knowledge.
5. Never let judgment be overruled by desire when choosing the route or deciding whether to turn back.
6. Carry the necessary clothing, food and equipment at all times.
7. Leave the trip itinerary with a responsible person.
8. Follow the precepts of sound mountaineering as set forth in textbooks of recognized merit.
9. Behave at all times in a manner that reflects favourably upon mountaineering, with minimum impact to the environment.

¹ Reprinted with the permission of the publisher from *Mountaineering: The Freedom of the Hills*. 6th ed. Don Graydon and Kurt Hanson (Eds), Seattle, WA: The Mountaineers, 1997.

ANNEX F

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CHAPTER 6

CROSS-COUNTRY SKIING

DESCRIPTION OF ACTIVITY

1. Cross-country skiing is an ancient sport that has been popular for centuries. The origins of the sport can be traced to the northern regions of the earth, mainly in Scandinavian countries. Cross-country skiing (also called Nordic skiing) involves a wide variety of types and styles; from classic to skate skiing, as well as backcountry skiing. There are other sports that involve Nordic skiing, such as biathlon and Nordic combined (ski jumping and Nordic skiing). There are many places in Canada that are conducive to cross-country skiing – every province and territory in Canada has their own association for cross-country skiing. Basically, all that is needed to try this sport is a good base of snow and a little will power. Skiing on groomed trails is a relatively safe activity, as the trails are patrolled regularly by ski patrols that are run by each individual ski centre. The usual safety precautions for cold weather are required, such as prevention of frostbite and hypothermia. Depending on the trail system and fitness of the participants, cross-country skiing can be a very demanding activity, so ensuring that each cadet is of reasonable good health is important. The beauty of this activity is that it can basically be adapted for anyone.

2. For our purposes, proficiency and training levels have been divided into three categories to facilitate learning and success by all participants:

- a. **Level 1 – Beginner.** Participants should become familiar with all types of equipment, be able to choose correct sizing, have a basic knowledge of the principles of skiing technique, and be able to perform these basic techniques (usually year one starting the sport).
- b. **Level 2 – Intermediate.** Participants should have mastered basic skiing techniques, and are now ready to apply them to more challenging terrain. Different types of skiing should also be taught at this level, i.e. back country skiing, advanced skating/diagonal techniques, etc. (usually years two and three of the sport, depending on muscle growth and strength requirements, i.e. age).
- c. **Level 3 – Advanced.** Participants have a good working knowledge of all skiing techniques, have had experience on all types of terrain, and have the ability to achieve longer distance intervals. At this stage, the participant could try to enter local competitions, and be able to follow a simple training plan.

AIM OF ACTIVITY

3. The purpose of cross-country skiing in the CCM is to continue and promote the development of physical fitness (as it is stated in the aims of our movement), and to empower young skiers to try new and different techniques. The benefits of regular cardiovascular exercise have been proven by countless researchers. Cross-country skiing is one component of biathlon. Participation by the maximum number of cadets is a very attainable goal for this sport, as it is possible for all cadets to participate at their own level.

CANADIAN REGULATIONS CONCERNING SPECIFIC ACTIVITIES

4. Cross-country ski trails can be found (and are abundant) throughout all of Canada. Each club or organization usually asks for a nominal fee for a day pass. The terms and conditions (liability) are printed on the back of the pass. However, it is possible to use just about any area where snow is found, as long as the permission of the landowner is granted.

CCM SAFETY REGULATIONS

5. All safety regulations regarding cold weather activities must be regarded. Refer to CATOs 13-12 and 24-01 and regional orders.

AUTHORITY LEVEL

6. Authority must be granted by the Commanding Officer of the cadet unit, as well as the cadet detachment.

GOVERNING BODIES

7. Recognized cross-country ski associations:

a. International

- (1) FIS Headquarters
Marc Hodler House
Blochstrasse 2
CH – 3653 Oberhofen/Thunersie
Switzerland
Telephone: +41(33) 244 6161
Email: mail@fisski.ch

b. National

- (1) Cross-country Canada
Bill Warren Training Centre
1995 Olympic Way, Suite 100
Canmore, AB T1W 2T6
Telephone: 403-678-6791
Email: info@cccski.com

c. Provincial/Territorial

- (1) Northwest Territories Ski Division
c/o Ms Jonny Graves
P.O. Box 1268
Yellowknife, NWT X1A 2N9
Telephone (res): 867-873-5373
Email: jonny@cbaexp.com
- (2) Cross-country Yukon
P.O. Box 4507
Whitehorse, YK Y1A 2R8
Telephone: 867-633-8420
Fax: 867-667-4237
Email: XCYukon@yt.sympatico.ca
- (3) Cross-country British Columbia
106 – 3003 30th Street
Vernon, BC V1T 9J5
Telephone: 250-545-9600
Fax: 250-545-9614
Email: CCBC@Junction.net

- (4) Cross-country Alberta
11759 Groat Road
Edmonton, AB T5M 3K6
Telephone: 780-415-1738
Fax: 780-427-0524
Email: cca@xcountry.sport.ab.c
- (5) Cross-country Saskatchewan
1860 Lorne Street
Regina, SK S4P 2L7
Telephone: 306-780-9236
Fax: 306-781-6021
Email: ccs@sk.sympatico.ca
- (6) Cross-country Ski Association of Manitoba
200 Main Street
Winnipeg, MB R3C 4M2
Telephone: 204-925-5639
Fax: 204-925-5624
Email: CCSAM@Pangea.ca
- (7) Cross-country Ontario
c/o Maureen Kershaw
120 Roxborough Dr.
Sudbury, ON P3E 1J7
Telephone: 705-674-4741
Fax: 705-674-3513
Email: mkershaw@cyberbeach.net
Lake Superior Ski Division: North Western Ontario
- (8) Ski de fond Québec
4545 Pierre-de-Coubertin Avenue
P.O. Box 1000, Succ. M
Montréal, QC H1V 3R2
Telephone: 514-252-3089
Fax: 514-254-1499
Email: barrettes@videotron.ca
- (9) Cross-country New Brunswick
P.O. Box 20012
Bathurst, NB E2A 4V7
Telephone: 506-546-3525
Fax: 506-548-8531
Email: xski-nb@direction-lr.com
- (10) Cross-country Ski Nova Scotia
P.O. Box 3010S
Halifax, NS B3J 3G6
Telephone: 902-425-5450
Fax: 902-425-5606
Email: canoens@sportns.ns.ca

- (11) Cross-country P.E.I.
P.O. Box 302
Charlottetown, PE C1A 7K7
Email: mazer@upei.ca
- (12) Newfoundland & Labrador Ski Division
Gerry Rideout
301 Curtis Cresc.
Labrador City, NF A2V 2B8
Telephone (res): 709-944-2154
Email: rideoutg@cancom.net

8. Rules and regulations for competitive race/tour differ according to the provincial/territorial laws and liabilities. Costs and insurance/waivers may depend solely on specific ski centres. International rules and regulations for elite racing are available on the Website for the International Ski Federation, mail@fisski.ch. Canada's rules and regulations are based upon these same governing rules.

9. Note there are no rules and regulations for recreational cross-country skiing.

■ EQUIPMENT REQUIREMENTS

10. Equipment for each participant:

a. **Ski Boots.** There are various types of ski boots available for various types of skiing. Boots fit the cadet's shoe size.

- (1) **Classical (Also Called Diagonal).** Shoe-like boot is used. No ankle support is needed due to the movement of the body while skiing. There are bindings usually found under the toe of the boot, which **MUST** match the bindings on the ski (be careful, many different types of bindings and boots have been developed!). The most popular binding is the SNS binding, which looks like a metal pin that is placed under the toe of the boot.
- (2) **Skate Skiing (Also Called Freestyle).** Larger, ankle supporting boot is used, since the ankles need support due to the style of skiing. For beginners, a firmer ankle support is desirable to facilitate easier learning. The straps on the boots and the laces will vary, some with Velcro straps and some with plastic clips. Again, it is very important to pay attention to the type of binding and boot. They **MUST** match. The most popular types are the SNS bindings and the Pilot bindings and boots.
- (3) **Backcountry Skiing.** Boot is a bit of a mix between the other two types (has stiff support but allows the ankle to bend). A much heavier boot in comparison to the others, more rugged to withstand the terrain of open spots of land. It is important that the binding match the ski.

b. **Skis**

- (1) **Classical (Diagonal) Skis.** Usually longer than skate skis, about 30 cm longer than the individual, according to the NCCP Level 1 technical handbook. Classical skis have a raised and pointed tip (to help plow through snow in the track). The same width as skate skis (about 6 cm), although the binding is placed specifically for classical skiing (done by the ski shop). There are variations, but generally they are made of hollow fibreglass, very light and easy to manoeuvre.
- (2) **Skate (Freestyle) Skis.** Shorter than classical skis, the ski should be no longer than 15 cm longer than the individual. For beginners, a shorter ski is desirable as it is easier to practice. Advanced skiers prefer a longer ski because it increases the gliding time of the ski. Tips are rounded and the binding is mounted specifically for skate skiing. Ski width is similar to classical skis (about 6 cm). Generally they are made of hollow fibreglass, very light and easy to manoeuvre.

- (3) **Back Country Skis.** Same length as classical skis, but much heavier, sturdier and stiffer than classical or skate skis. This is needed when the terrain is considered. Bindings are usually metal and very strong. Wider than skate or classical skis (about 10 cm) in width. Many variations on composition but are usually made with heavier fibreglass, wood, and often have metal edges.
- c. **Poles.** For classic and backcountry skiing, the poles should fit snugly under the armpit when their tip is on the floor. For skate skiing, the pole should reach the upper lip (NCCP Level 1 technical handbook, 1987). There are many different types of poles available, the lighter the pole the more expensive it is and the more energy you will save.

RECOMMENDED EQUIPMENT LIST

11. **Clothing.** Clothing for each type of skiing depends on the experience and skill level of the participant. Generally, a good rule is to dress in layered clothing, so that a layer can easily be removed if desired. The more novice a skier is, the more and warmer the clothing needed, depending on the weather. Advanced cross-country skiers (racers) can wear conformed Lycra suits, which enable full range of movement and reduce unnecessary weight on the skier. In backcountry skiing, it is probable that the skier will be out for an extended amount of time, and the speed of skiing is reduced. Therefore, warmer, bulkier clothing is required. It is desirable to have a water bottle or water supply near to enable adequate hydration.

12. **Ski Wax.** There are various waxes used to treat the bottom of the ski (the surface that glides on the snow). Generally, there is a correct wax for each snow temperature. The warmer the snow, the warmer and softer the wax to be used. Each type of skiing requires a different wax, as the mechanics of each type are different.

- a. **Classical/Diagonal/Backcountry Skiing.** Two types of wax are used on the ski: grip wax and glide wax. The base of the ski should be clean (wax remover may be used) and free of any major gouges or damage (ski shops can stone grind the bases if they are in bad shape). Glide wax is applied to the length of the ski. Grip wax is then applied to the section in the middle of the ski where the binding is. Grip wax is corked in and then the ski is ready for use. The reason for the two waxes is because the classic skier stays in the groomed track for the duration of the ski time. In order to get up hills and to get a good kick, a good grip is needed.
- b. **Skate/Freestyle Skiing.** Glide wax is all that is needed. Generally, the cleaner and shinier the ski, the faster it is. There are many types or grades to glider wax, the higher the fluorocarbon content, the faster the wax (and the more expensive!).
- c. **Waxing Equipment.** To properly wax skis, the following equipment is needed:
 - (1) wax remover;
 - (2) fibrolene cloth;
 - (3) Fibertex;
 - (4) P-tex candles;
 - (5) waxing iron;
 - (6) waxing form;
 - (7) plastic scrapers;
 - (8) wax;
 - (9) nylon brush;

(10) horsehair brush;

(11) synthetic cork; and

(12) snow thermometer.

13. Applying wax: clean the ski with wax remover and wipe with fibrolene. Use Fibertext to rub on the surface and remove any oxidation spots. Apply glide wax by melting it on the ski using the iron. The iron is placed on the ski, and the wax is melted over the entire surface of the ski. Caution is needed! Only use the iron to melt the wax, heating the base too much or for too long can cause damage to the ski. Stop immediately if the iron starts to smoke! That means that it's too hot. After letting the bases cool to room temperature, scrape the ski from the TIP TO THE END (the same way that you would glide) using the plastic scraper. Scraping the other way will make a slow ski. Scraping off the excess wax will expose the ski base, as the wax is absorbed through tiny pores in the ski base surface. After scraping, buffing with first the nylon brush, then the horsehair or synthetic brush will make the base shiny and slippery. Perfect to ski on! The ski is now ready for use by the freestyle/skate skier. The same process is needed for the classic/backcountry ski, but a layer of grip wax is applied to the section underneath where the binding lies by crayoning it on (the wax comes in a big crayon shape). The grip wax is then rubbed vigorously with the synthetic cork to be absorbed. Now the classic/backcountry skier is ready to go! Wax should be applied every time there is a major temperature change, when the ski becomes dirty, or when white patches develop. The white patches are from oxidization, and can be rubbed off with Fibertext.

WAX TEMPERATURE CHART			
Temperature	Glide Wax	Grip Wax	Snow Conditions
-15 and Colder	Green	Green	Fresh/Old, Snow, Granular
-10 to -15	Blue	Blue	Fine Grained, Old/New Snow
-5 to -10	Purple	Blue	New/Old Snow
0 to -5	Red	Purple	New/Old Snow
+5 to 0	Yellow	Red, Yellow	New/Old Snow
-15 and Colder	Graphite		Old, Grained Snow, Low Humidity
Any Temperature	High Fluoro		Dirty Snow

14. Remember that you are waxing for the SNOW temperature, not the air temperature. Generally, if the humidity is higher, the warmer the wax will be. A good test is to grab some snow and try to make a snowball out of it. If it makes a nice snowball, the humidity is generally higher. If the snow is very dirty, waxing often is a good idea to keep the ski base in good condition.

■ RATION REQUIREMENTS

15. Usually there are no open spaces where open fires are allowed on regulated and privately owned trails. Food must be brought with each individual, so lightweight but high-energy snacks are the best choice. Granola, dried fruit, and cereal bars are a good choice.

16. Plenty of liquids are necessary for cross-country skiing. It is very important to rehydrate often, and participants should be reminded of this. Hot liquids are also highly beneficial, as they can warm up anyone who becomes cold.

17. It is important that a greater than normal amount of food be consumed by each participant, since the energy output will be higher.

TRANSPORTATION REQUIREMENTS

18. Access to and from the ski centre or training area is open to the public.

19. A safety vehicle will be fuelled and present at the closest vehicle access point. The vehicle must be able to carry any casualty that must be evacuated on a spine board.

SAFETY PRECAUTIONS/GENERAL RULES FOR CROSS-COUNTRY SKIING

20. Cadets and staff need to be briefed with a safety briefing, consisting of the following:

- a. frostbite, hypothermia, dehydration prevention;
- b. using the buddy system;
- c. staying on groomed and marked trails only (if skiing at a private or public ski centre);
- d. RV time at the end of the activity so that everyone is accounted for; and
- e. instructions to get help from the ski patrol if needed.

21. Cadets and staff need to ensure that they know that all equipment functions properly.

22. It is important to let staff know the universal sign for passing an individual on an open trail. If one wants to overtake (or pass) another on the trail, he or she will call out, "Track." It is the responsibility of the person being overtaken to veer over to the right side of the trail wait until the other skier has passed.

SPECIAL SAFETY CONSIDERATIONS FOR BACKCOUNTRY SKIING

23. Unlike cross-country skiing on groomed trails, backcountry skiing will sometimes be done on some rough terrain and difficult snow. Since there may be many different layers in the snow, it is important to practice first on good, hard packed snow before trying to break your own trails and skiing in the deep snow. The leader of the group will have the hardest time when backcountry skiing, as he or she is the one who has to break the trail first through the snow. The others that follow will have a much easier time due to the efforts of the leader. Make sure that everyone takes turns being the first to break the trail, as it can be exhausting.

24. Backcountry skiing can be difficult at times, as some terrain may be quite hilly and require a lot of strength and skill to climb. It is important to ensure that any mountainous area is well researched. It is dangerous to try and ski a slope above 30°. There is a real danger of avalanches at these increased slopes. As well as the slope, ensure that the stability of the snow has been tested (the layers are sturdy enough to travel on). You can inquire at your local natural resources or ranger station for the information.

25. While skiing with a group, it is important that the group stay together at all times. Watching out for each other and making sure that everyone is warm and comfortable is important. A first aid kit (bandages, gloves, antibacterial cream, splints, etc.) and winter emergency kit should be brought with the group. It is important that the emergency kit carry the following:

- a. tin can (for melting snow/water);
- b. lighters/matches;
- c. down parka;
- d. pocket knife;

- e. candles;
- f. Thermarest pad;
- g. fire starter, i.e. dryer lint; and
- h. space blanket.

26. If planning an overnight winter camping experience, the usual safety precautions for outdoor winter camping apply. Packs may be worn to carry equipment, but make sure that each person is carrying no more than one fifth of his or her weight. Packs with internal frames are better to use, as they keep the load closer to the body. Keep in mind that it is much more difficult to ski with a pack on (it throws off your centre of balance), so it is a good idea to have a few practice sessions before heading out on an overnight backcountry skiing trip. Sleds may be very beneficial, as it is easier to carry heavier loads when they are sliding. Be careful when going up or down hills with a sled to ensure that it is under control.

27. Remember that when camping outdoors in the winter and backcountry skiing, it is important to ingest enough calories to keep the body functioning properly. A good plan is to make sure that each participant eats about 3700 to 4500 calories per day, to keep the body's internal furnace working. In the cold the body must compensate to keep warm, and it makes us burn up more calories than if we were inside.

28. Mountain touring may well be the ultimate ski experience! The biggest assets of mountain skiing, however, are also its biggest liabilities: great vistas (hence steep slope gradient), good snow (hence risk by virtue of isolation and lack of facilities). As with driving an automobile, a key factor in enjoying mountain ski touring is to eliminate liability by properly assessing and eliminating risks.

CADET SKILL LEVEL AND PROGRESSION

29. The traditional approach of cross-country skiing organization is to develop well-rounded skiers in every individual. Cross-country skiing participants may not wish to be completely versed in every style of cross-country skiing but it is recommended they at least complete a well-rounded familiarization. In order to become qualified instructors with either Cross-Country Canada (NCCP coaching levels) or CANSI, instructors will have to be able to perform and teach all the styles and components below. At Annex A, refer to the progression matrix.

30. **Familiarization.** Getting the equipment on is the first big hurdle. Remembering it is important that ski bindings match the ski boots being used.

31. Warming up is extremely important, regardless of the level of the athlete. Warming up involves slow stretching from head to toe, and then movement on the skis. Jumping from side to side with the skis on, jumping jacks, and stepping to turn a full circle are excellent warm up drills. Balancing drills are also good to use in a warm up, since balance is one of the major skills needed to ski successfully. Balancing on one ski while bending the knee, holding the ski (one leg at a time) at different heights are good exercises (adapted from *The Instructor's Manual for Teaching Nordic Skiing*, 1994). After this step, cadets must be evaluated to ensure that they are placed in the correct learning level.

32. **Beginner**

- a. After becoming familiar with the equipment and safety rules, the beginner should practice the balancing exercises that are listed above in the warm up stage, and learn first the correct procedure to get back up after a fall. When lying on the ground (regardless of position), have participants lie on their backs, put their legs (and skis) together and parallel, and get up by rolling on to their sides. Trying to stand back up on your feet is very tricky any other way. As well as going up the hill, the participant must be taught a safe way to go down a hill, using a snowplowing action. Pushing the outside of the ski and bringing the tips together will slow down momentum while going down a hill and give the skier control over his or her skis.

- b. **Classical/Backcountry.** The diagonal stride is taught first, which resembles the rhythmic action of walking. Striding and weight transfer are the basis of all classic skiing movements (adapted from *The Instructor's Manual for Teaching Nordic Skiing*, 1994). Trying the movement (opposite leg, opposite arm with a weight transfer in between) without poles first is a good idea. The next progression would be to teach double poling. This technique is rather simple; it involves keeping the skis in the tracks and using simultaneous arm action (poling) only to propel the body forward. Once the participant is comfortable with that, teaching the herringbone to get up hills is the next progression. With the skis pointed outward, stepping up the hill one step (ski) at a time with the opposite arm, opposite leg technique.
 - c. **Skating.** The free skate is taught first, and it resembles ice-skating. The longer the glide and the better the balance of the skier, the better skier he or she will be. It is important that the skier not try to use his or her poles, only holding them for balance. The diagonal skate comes next, which has been nicknamed "the duck walk." It is an easier method to getting up a hill, and involves a herringbone method (as in classical skiing) with a push from the opposite pole to the opposite ski. After the skier is comfortable with the first two techniques, the offset skate is taught. This is a two-skate method, used for climbing hills. It involves planting one ski and two poles at the same time, to push the remaining ski up the hill.
33. **Intermediate**
- a. **Classic/Backcountry.** The next progression is to teach one-step double poling. It involves the same action as double poling, but a kick or step is added into the power phase. It is much faster than double poling. The next stage would be to teach the uphill diagonal stride. This involves the same diagonal stride as in the beginner's phase, but with a much refined weight transfer, and a quicker, shorter movement in order to get up the hill.
 - b. **Skating.** The one skate and two skate come next on the progression scale. This involves the pole planting at the right intervals in order to help facilitate forward momentum. Once these are mastered, the marathon skate is an easy progression, because it involves keeping one ski in the classical track and pushing with the remaining ski.
34. **Advanced**
- a. **Classic/Backcountry.** Once each technique is taught, it must be practiced regularly. The advanced skier should be able to perform all techniques, as well as be able to perform these techniques for longer intervals. This stage would be where the participant could enter races and strive to meet his or her goals for specific times. A training schedule may be followed, and the skier should be able to correct small faults in technique and improve with practice.
 - b. **Skating.** The last progression is the skating turn, which involves a high speed turn when skiing down a hill. The skier must be advanced and confident in order to perform this progression. After he or she is able to perform all techniques, he or she should practice by performing these techniques for longer intervals. As well, racing experience is encouraged and a training schedule may be followed. Techniques should be practiced to correct any minor errors.

PHYSICAL FITNESS

35. Any cadet who is willing to try can participate in this activity. It is recommended (as with any cardiovascular exercise) that each participant be in good physical health. The more experienced and technically sound the athlete, the longer intervals for ski time can be tolerated.

QUALIFICATION PROGRAMS

36. The Jackrabbit Program (affiliated with Cross-country Canada) is available at most ski centres, and is run locally by volunteers who have taken a local leader's course. Children who participate are between the ages of 4 to about 16 years. The program is divided into proficiency badges, with colours for each proficiency level. There are also distance challenge badges, and racing badges that are attainable.

37. The Junior Development Program (affiliated with Cross-country Canada) usually follows the Jackrabbit Program, and is aimed at those young people who want to increase their knowledge about racing and wish to ski competitively. Certified Cross-country Canada coaches normally run the program.

38. NCCP Coaching Program is run by Cross-country Canada, and is available to anyone who is 16 years of age or older, has some skiing experience, and an interest in the course (NCCP manual, CCC Level 1 Technical, 1987).

QUALIFICATIONS, EXPERIENCE AND FITNESS OF LEADERS AND OPI

39. It is necessary to have an instructor with experience at cross-country skiing, and who is able to teach at the level of the cadets. Of course, the instructor must be able to teach all types of technique, so he or she must be in fairly good physical condition. If the instructor has coaching experience or Jackrabbit leadership experience, it will be easier for him or her to show the progression of each technique.

40. Medical/first aid qualified staff are mandatory as with any cadet activity. It is important that at least two instructors are advanced enough skier so that they can respond to any emergency if ski patrol personnel are not available.

41. The OPI must be an adult, CIC, CI, or SME, and be familiar with the safety rules and protocols of the CCM.

42. The following are the recommended instructor to cadet ratios. Instructors may be older, experienced cadets, as long as they are supervised by a CIC, CI, or SME who is an adult:

- a. beginner – 1:10;
- b. intermediate – 1:15; and
- c. advanced – 1:10.

43. It is important that skiers always stay in groups of at least two. There may be times when skiers are left on their own to practice their technique, so they must be in pairs. There really is no limit of skiers in a given day, as long as there are sufficient staffs and the facility is large enough to accommodate the group.

REQUIRED PREPARATORY WORK

44. **Required Recces.** It is important that the facility or land that will be used is visited. There are numerous cross-country races and different events that happen throughout the ski season, and it is advisable that large events are avoided for beginner and intermediate skiers. Oftentimes trails can be closed to the public due to a large ski race. It is also a good idea to approach the manager or owner of the facility and let him or her know that you are planning to bring a group for some practice. He or she may have some specific times that would be best for your group, and you may even get a deal on the price of a day pass per cadet!

45. The emergency plan must contain contact information and the following details:

- a. contact information to EMS;
- b. phone number, medical number, emergency contact number, any special relevant medical details for each participant;
- c. who the first aid qualified personnel are; and
- d. how any first aid situations will be handled.

TIME OF DAY/YEAR REGULATIONS

46. Skiing is mostly done during the day; however some facilities have lit trails at night and have convenient hours. Since there is not much daylight, if it is desirable to have an evening practice, it is possible to do so. Normally (and depending on what part of the country you wish to participate), ski trails are accessible from about mid-November to late March. It is not advisable to ski until there is a sufficient base of snow, as it will damage the bases of the skis. Only ski under light conditions.

DURATION OF THE ACTIVITY

47. For beginners, usually a 15- to 20-minute lesson with a 15- to 20-minute practice time is enough. For intermediate skiers, a shorter duration of the lesson but a longer practice session is good. For advanced skiers, a short lesson with a long practice period is sufficient. Unless on a day trip (as is the case with backcountry skiing), the longest that is advisable to have a practice is two hours. Use the first 15 to 20 minutes for the lesson, and the rest of that hour for the practice. It's good to have an indoor break in between, for re-hydrating and warming up. For advanced skiers, an hour workout is quite a lot, they should be able to ski about 15 km in that time. Ensure that they are not overdoing their training. All recommended durations of this activity are related to the weather – keep a close eye on the group and be sensitive to their temperature. There are plenty of things to go over inside while they warm up, i.e. a waxing session, etc.

ENVIRONMENTAL CONSIDERATIONS

48. As with any activity, cadets are expected to respect the environment, and leave no trace of where they have been training. No cadet should deviate from a marked trail, or tear away any branches or leaves while passing by. Public washroom facilities are available at most skiing facilities, and if not, a port-a-potty or some other measure must be used. No waste will be left anywhere on any trail.

WEATHER CONSIDERATIONS/ABSOLUTE STOP CONDITIONS

49. Since skiing is done in the winter, it is important to consider the weather and all the elements that may make it difficult to have a lesson or practice session. Heavy snowfall or wind, low temperatures, darkness, low visibility or even wet snow or warm temperatures can make for miserable skiing. **Using good judgment when considering the weather is important.**

50. If the temperature falls **below -20°C** (with the wind-chill factor calculated in), cadets must be brought inside. It is dangerous to be skiing if it is below this temperature. These are rules set out by the Cross-country Canada and Biathlon Canada Race schedules.

RISK ASSESSMENT AND MANAGEMENT

51. This chapter has clearly identified some very specific guidelines and safety considerations to be included in every level of risk managements. The following list of factors is not exhaustive:

- a. age and experience of the participants;
- b. temperature;
- c. equipment reliability and wear;
- d. weather and environmental conditions;
- e. emergency plans; and
- f. leadership and SMEs.

DEBRIEF

52. The personal challenges each participant will meet can be discussed in a learning/supportive environment. Group leaders should be especially aware of difficulties some participants may have encountered and use judgment in adapting group debriefs. It may be more appropriate to discuss some issues in private. Depending on the intensity of the experience, some participants may require some personal time or a team activity immediately following activity. Staff, especially developing leaders, will require special attention and debrief.

LOGBOOK

53. Cadets should keep a logbook of their learning progressions, skiing times, and goals. It is important for them to see how they have progressed in the sport and it will show them their successes and what they need to work on. It is also important to keep track of the number of kilometres skied (for advanced skiers mostly) to prevent over training and burnout. It can be a simple diary or a table as follows:

Date	Techniques Learned	Techniques Practiced	Goals for Next Practice	No. of km Skied

ANNEX A
SKIING PROGRESSION MATRIX

Age	Star Level	Intensity of the Activity	Delivery Method	Class of the Activity	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-18	Green to NSCE	Familial/Beginner	Day Instruction	Level 1-2	None	20	1:10	LHQ	CIC/CIs Local SME	Detachment
13-18	Red to NSCE	Intermediate	Day Trip	Level 2	Bronze	20	1:15	LHQ	CIC/CIs Local SME	Detachment
16-18	Gold to NSCE	NCCP Level 1	Course	Level 2-3	None	N/A	1:20	CCC	CIC/CIs Local SME	Detachment
15-18	Silver to NSCE	Advanced	Day Trip	Level 3	Silver	20	1:10	LHQ/Zone Region/ National	CIC/CIs Local SME	Region/ National
16-18	Gold to NSCE	Advanced	Over Night	Level 3	Silver	20	1:10	Zone/Region National	CIC/CIs Local SME	Region/ National

Figure 6A-1 Skiing Progression Matrix

ANNEX B

REFERENCES

Canadian Association of Nordic Ski Instructors (CANSI). *The Instructor's Manual for Teaching Nordic Skiing*. Gloucester, Ontario, 1994.

Cross Country Alberta. *Ski Touring – The Right Stuff*. 1989.

Cross Country Canada. *Cross Country Skiing Levels 1 & 2 Technical*. Canmore, Alberta, 1987 and 1995.

Cross Country Canada. *Tour Leading Manual*. 3rd ed. 1983.

Helena, M., M. Clelland, and A. O'Bannon. *Allen & Mike's Really Cool Backcountry Ski Book – Travelling & Camping Skills for a Winter Environment*. Falcon Publishing Inc. 1996.

CHAPTER 7

HIKING AND BACKPACKING

DESCRIPTION OF ACTIVITY

1. Hiking is the activity of vigorous walking in the outdoors/wilderness on an unpaved trace, either a path or navigating an unmarked route. Usually hiking consists of travelling across country over different terrains, sometimes with inclines and declines. Hiking is sometimes referred to as mountain/hill walking IAW DAOD 5031-10, Adventure Training. Hiking can take place on a route with a different start and end point, a circuit or a mid-point destination and return. Hiking may also include obstacle crossings of low-level intensity such as logs and fallen trees; however, it does not include river crossings (fording). Activities that include crossing such obstacles require a higher skill level from all participants (for river crossing refer to Chapter 5, Annex C), special equipment and are regulated separately. Often participants will carry water, food, living and emergency equipment. In this document, hiking becomes backpacking once equipment is carried for an overnight stay.

2. Mountaineering is the skill of mountain travel at high altitudes; usually an ascent and foot travel over 2000 m above sea level, sometimes above the tree line and on glaciers. Mountaineering often combines climbing skills either as part of optional training opportunities or necessary for safety. Mountaineering will be regulated in combination with climbing in a separate chapter.

3. **Rating Systems.** Many rating systems exist for rock climbing and alpine mountaineering. Although DAOD 5031-10 uses the British Adjectival Grade Scale (from “Easy” to “Extremely Sever”), the CCM will use the Yosemite Decimal System (YDS), the most common rock climbing rating scale in North America. Numerical scales are popular because their progression is expected for example: YDS has a scale from 1 to 5 and UIAA has a scale from I to X. Furthermore, YDS rates the hardest/most technical section on a terrain/route. One of the other advantages of the YDS scale is that it includes ratings for travel over non-vertical terrain. The following word description of the YDS scale was modified from the book *Mountaineering: Freedom of the Hills*, 1997:

- a. **Class 1.** Hiking, usually on a trail.
- b. **Class 2.** Simple scrambling, crossing obstacles with the occasional use of hands, requires route-finding skills, may be backcountry dense bush.
- c. **Class 3.** Angle is steep enough that hands are required for balance; scrambling on rocks using hands and feet, a rope might be carried.
- d. **Class 4.** Simple climbing, often with exposure requiring a rope belay. A fall could be serious or fatal. Natural protection can usually be easily found.
- e. **Class 5.** Technical rock climbing begins. Climbing involves the use of ropes, belays, and the placement of natural or artificial protection for the leader in case of a fall. An open ended decimal extension to Class 5 exists for rating climbs within this category.
- f. Class 5 is further divided using a decimal and alphabetical scale, describing vertical climbs.

AIM OF ACTIVITY

4. The aim of hiking is to first learn the skills of outdoor/hill walking so that they are beneficial to the physical health of the participants, offer a learning environment not available before and explore the outdoor surroundings of a specific area. Hiking can be a challenging activity for new cadets who have never been exposed to this activity; it can also offer challenge to experienced hikers by varying the conditions in which this activity is delivered. Hiking develops some of the necessary basic skills required in composite skills such as backpacking/camping and mountaineering. Hiking and backpacking in the CCM will take place in terrain rated from “flat” to Class 3 of YDS. Class 4 and 5 will be considered climbing, alpine travelling or mountaineering.

CANADIAN REGULATIONS CONCERNING SPECIFIC ACTIVITIES

5. Specific regulations exist in certain areas such as national parks, nature preserves, world heritage sites, private land and crown lands. Access to Canada's outdoors is readily available through private owners, municipalities, parks officials and forestry districts. It is sometimes necessary to gain a land use permit or special licenses for some specific areas. Often, there are costs and special regulations (limiting the groups size, access points, camping practices and waste disposal) associated with the use special areas such as national parks. Members of the CCM must adhere to all regulations in a specific area in addition to DND regulations.

MILITARY REGULATIONS

6. DAOD 5031-10 separates the activities of mountain walking; mountaineering; rock and ice climbing; and wilderness trekking. This instruction will include the safety requirement of DAOD 5031-10 for these activities and will also add to those requirements. DAOD 5031-10 will serve as a safety minimum for this instruction.

7. The Department of National Defence requires that a right of use permit be granted for all use of private property. Commercial property may be accessed through the purchase of passes or permits. The purchase of a pass or permit then becomes the legal contract between the owner/governing agency and the CCM members and as such grants right of use according to the conditions under which the permit was purchased.

AUTHORITY LEVEL

8. All hiking and backpacking activities require prior approval by Detachment Commanders. Backpacking in a terrain rated as YDS Class 3, however required authority by the RCSU Commander. Wilderness trips that include Class 3 terrain will usually include regional or national involvement and as such will require that level of authority.

9. **Governing bodies** (provincial; national and international associations; federations, industry standards).

10. There is no national or provincial governing body of hiking and backpacking although numerous agencies use it as an activity to deliver their curriculum. There are also numerous qualification courses and agencies that offer hiking and backpacking experience and certification, however none of them are required by law. The ACMG is the most recognized national agency in this field, and it offers a hiking instructor qualification. Although the hiking and backpacking leaders/instructors do not require this qualification, the ACMG qualification is the standard of comparison used in this instruction.

11. Association of Canadian Mountain Guides (ACMG)
P.O. Box 8341
Canmore, AB T1W 2V1
Telephone: 403-678-2885
Fax: 403-609-0070
Email: acmg@acmg.ca

12. IFMGA – International Federation of Mountain Guides and Associations.

■ EQUIPMENT REQUIREMENTS

13. The following equipment is necessary and must be carried:

a. **Appropriate Clothing**

- (1) must be appropriate for the weather conditions and the activity;
- (2) offer wind and rain resistance;

- (3) insulation and padding;
- (4) flexibility without drag;
- (5) layered as necessary;
- (6) be comfortable; and
- (7) be complete including head, hands, legs and foot warmth.

b. Appropriate Footwear

- (1) on flat terrain – good soled shoes that offer good cushioning, arch support and grip are necessary;
- (2) on inclined terrain (Class 2-3) – hiking boots that offer ankle support are necessary in addition to cushioning, arch support and grip; and
- (3) on expected wet terrain – some form of water resistance or impermeability may be necessary, changes of sock are considered a minimum requirement.

c. Necessary food and water.

d. Communications

- (1) if any part of the hike is to take place more than one-hour drive from medical help; it is required that the group carry at least one method of communication for requesting help; and
- (2) hand-held radios, short wave radios, cellular phones and satellite phone must be considered so that communications is reliable with at least one means.

e. First Aid

- (1) first aid equipment must be carried with every group that travels independently; and
- (2) basic first aid equipment must be adequate for the activity and in sufficient quantity for the size of the group.

f. Group Equipment

- (1) at least one mean of purifying water is required;
- (2) appropriate maps and compasses for navigation;
- (3) whistles; and
- (4) bear spray if travelling in bear country.

g. Hand-held signal flares should be brought if the activity is taking place in a wilderness setting and consider learning how to use, and bringing, a GPS.

14. D E L E T E D

■ RATION REQUIREMENTS

15. Rations are usually required for hiking activities, with the exception of short half-day hikes:

a. **Type**

- (1) Preferably lightweight.
- (2) Can be eaten warm or cold.
- (3) High energy.

b. **Amount**

- (1) Sufficient quantity for each member for the duration of the hike.
- (2) Extra rations for a safety margin (usually at least one extra meal for a short hike and three meals for a five-day trip).

c. **Preparation**

- (1) Permission must be granted for open fires and open fire cooking (under supervision).
- (2) Rations should be easily prepared especially with low-level skilled cadets.
- (3) Hiking participants with experience and acquired skills may graduate to complete meal planning and preparation of fresh ration.
- (4) Waste disposal must be in accordance with facilities and/or land use agreement; “no trace or low impact” camping skills as established Royal Canadian Army Cadets Reference Book.

d. **Fluids**

- (1) Should be readily available in large quantities.
- (2) Weight will likely prove to be prohibitive, consider filtering water as necessary, ensure streams and waterways are available, and an appropriate filter/purifier is used.
- (3) May boil water for consumption; bring it to a rolling boil for at least five minutes (as part of planning, the hikers must consider the extra fuel requirements of this water purifying method).
- (4) Use chemical purification such as iodine and bleach sparsely and for short durations, following the manufacturer's directives. In some cases, specific chemical treatments are prescribed according to the conditions, follow the manufacturers directive and obtain medical approval. Note that chemical water treatments are contra-indicated for certain medical conditions.

TRANSPORTATION REQUIREMENTS

16. Safety vehicle and evacuation means may be the same vehicle. A safety vehicle must be present at a location as close as possible to the leader. The safety vehicle must have appropriate communications means to be in contact with both the trip leader and local authorities. A first aid kit must be available in the safety vehicle at all times.

17. In wilderness settings where no land or water safety vehicle is accessible within three hours, proper arrangements must be made for helicopter evacuations through either search and rescue, the CF, parks services, police/fire department or the national coast guard prior to the expedition. If this last option is used, proper communications must be established with the evacuation agency. In this case, communications will usually require satellite phone access and a prepared list of the appropriate phone numbers and emergency procedures. Plan ahead.

CADET SKILL LEVEL

18. The basic skills and application of hiking should be made available to every cadet. The development of advanced hiking skills such as mountaineering however must be introduced progressively to cadets who wish to participate.

- a. **Qualification.** There are no qualifications necessary for hiking and backpacking activities.
- b. **Experience**
 - (1) No experience is necessary for flat terrain, day hiking.
 - (2) Participants must have experienced at least one flat terrain activity prior to taking part in an inclined hike (Class 1-2).
 - (3) Participants must have experienced at least a day hike prior to taking part in an overnight backpacking trip.
- c. **Basic Knowledge/Technical Skill**
 - (1) Participants must have participated and demonstrated reasonable skill prior to taking part in a more physically/technically demanding hiking activity.
 - (2) Participants must have carried their own equipment.
 - (3) Hikers should have the opportunity to participate in the navigation/route selection discussion.
 - (4) Participants must have finished the hike with no great discomfort.
- d. Basic knowledge and technical skill in hiking will often serve as a prerequisite to more advanced composite skill such as camping and wilderness backpacking.
- e. Recommendations for the cadets who will take part in hiking adventure activity:
 - (1) Cadet may be selected and/or matched in specific groups according to their qualification, experience and level of physical fitness.
 - (2) Cadets must demonstrate a willingness to participate in hiking and backpacking activities prior to selection for Class 3 hiking wilderness trips.

PHYSICAL FITNESS

19. There are no physical fitness level requirements for participating in hiking and backpacking activities except at the senior/advanced levels. In technically challenging conditions (Class 3), overnight and wilderness trips require a minimum level of fitness. Refer to the hiking and backpacking progression matrix at Annex A.

TRAINING PROGRESSION

20. Refer to the hiking and backpacking progression matrix at Annex A.

QUALIFICATIONS, EXPERIENCE AND FITNESS OF LEADERS AND OPI

21. Qualification

- a. Up to Class 2 hiking and backpacking activities **not** including wilderness travel:
 - (1) Instructors and leaders must be MOC Army qualified.
 - (2) At least one leader must hold a current Standard First Aid qualification.
- b. For Class 3 hiking and backpacking activities or wilderness backpacking in Class 1-2:
 - (1) At least one leader must hold a current Wilderness First Responder qualification.
 - (2) It is recommended that instructors and leaders hold the ACMG Backpacking Hiking Guide qualification.

22. Experience. Up to Class 3 hiking:

- a. One leader must have at least 10 days of personal or leadership experience in similar conditions as the ones expected on the activity.
- b. At least one leader should have previous experience in the area being traveled.

23. No specific fitness level is required for leaders or instructors; they must however at least be of equivalent fitness as the cadets under their charge. Leaders and instructors will usually be of a higher level of physical fitness since they will require additional cardiovascular and muscular endurance to deal with emergencies in addition to fulfilling their duties as a leader.

24. At least one leader must have command experience equivalent to a trusted/mature platoon commander.

INSTRUCTOR TO CADET RATIOS

25. There must be at least two staff on every hiking/backpacking activity. On relatively levelled terrain and easy access to Emergency Medical Services (EMS), the instructor to cadet ratio can be as large as 1:10. In isolated wilderness settings, the instructor to cadet ratio will not be greater than 1:5.

MAX AND MIN NUMBER OF PARTICIPANTS

26. Because of the impact on trails, routes and campsites, groups must be restricted to 30 personnel maximum. It is recommended that large groups be divided into smaller ones, departing at staggered intervals, use different trails, and camp separately. Since the survival of the group will usually rely on teamwork, groups must have at least four members in rural conditions and six in isolated wilderness areas.

MANAGEMENT GUIDELINES

27. **Group Organization and Leadership for Hiking and Backpacking Trips.** An instructor or trip leader cannot also be the only supervisor. Certain conditions require extra adult supervision, i.e. more technical conditions (Class 2-3), isolated wilderness areas, bear country, new cadets, and instructors with little experience. Leadership and command responsibilities are often shared with experienced cadets in order to teach the necessary skills, develop self-confidence and teamwork. Adult leaders however must take responsibility for the following:

- a. Responsibilities of the leader:
 - (1) set pace and keep track of group;

- (2) select route to be followed;
- (3) scouts obstacles and difficult areas;
- (4) act as the first level of rescue/first aid if required; and
- (5) manage the safety equipment.

b. Responsibilities of the last person in a hiking/backpacking group:

- (1) keep group intact;
- (2) alert for necessary rescue/first aid; and
- (3) carry any other safety equipment.

c. Group responsibilities:

- (1) keep group compact;
- (2) maintain sufficient spacing and tempo;
- (3) keep the next person up and down from you in sight, signal to stop if necessary;
- (4) communication must carry up and down hill; and
- (5) give the right of way to uphill travelling groups, very large groups or emergency evacuations.

28. **Rescues.** Leader and instructors must be prepared for emergencies. All hikers must be trained in basic rescue and first aid so that they may help themselves in an emergency. Also, it is beneficial to develop a team approach to rescues and instruct team rescues to hiking groups.

a. The priority of rescue must always be:

- (1) people; and
- (2) life sustaining equipment (i.e. food, communications and first aid kits).

b. Group responsibilities in a rescue:

- (1) alert other hikers of accident or dangerous conditions;
- (2) hikers must initiate whatever self-rescue or first aid is necessary, accept assistance;
- (3) other hikers are to assist in a rescue to the best of their abilities when it is safe to do so; and
- (4) all hikers not involved in the rescue are to stop, clear the path, gather as a group, walk back downhill if necessary, and wait for further instruction.

29. **Wilderness Safety.** Many aspects of wilderness safety are generally applicable to hiking and backpacking, they must however be emphasised in wilderness settings:

a. **Environmental Conditions**

- (1) altitude sickness;

- (2) coping with animals;
- (3) coping with the weather;
- (4) heat and cold injuries and illness;
- (5) coping with poisonous plants; and
- (6) water requirements.

b. On Route Considerations

- (1) trail/march discipline;
- (2) lost hiker, lost or stranded group;
- (3) accidental injuries and repetitive stress injuries, endurance problems (fatigue and dehydration);
- (4) route/obstacle crossing options; and
- (5) teamwork.

c. Campsite Safety

- (1) fire and stove safety; and
- (2) food storage and food loss.

NECESSARY PLANNING

30. **Familiarity With Area and Recces.** At least one instructor, usually the trip leader, should have training/tripping experience of the area prior to conducting cadet training/tripping. If a physical recce is not available, extensive specific recces of the following points must be done prior to the trip. Written information, the Internet and local knowledge can be used to prepare for the trip. Map recces are a component of the preparation of a trip, and cannot serve as the sole source of information prior to departure.

- a. start and finish points;
- b. emergency evacuation points;
- c. camp sites, primaries and back-ups;
- d. rendez-vous points;
- e. alternates;
- f. environmentally sensitive areas; and
- g. identified danger areas, i.e. cliffs, rockslides, ranges.

31. **Safety Checklist.** A safety checklist is used during the preparation phase of all hiking/backpacking trips. It should contain the following points. This list is not exclusive and safety checklists should be amended to match the activity planned:

- a. File a trip plan (itinerary, path, expected timings, methods of contact) with local authority, training headquarters or use an on land safety vehicle.

- b. Safety equipment required by law.
- c. First aid equipment appropriate to size of group and type of activity.
- d. Equipment checked for serviceability.
- e. Emergency and evacuation plan, including details on how to contact emergency medical services, and headquarters support.
- f. Food and water.
- g. Necessary living equipment.
- h. Communications equipment and system of signals to be used within the group and to access outside help.
- i. Leadership briefing detailing how the trip will be conducted.
- j. Trip log.
- k. Risk assessment and management.

TIME OF YEAR REGULATIONS

32. Although climates and geography differs in the many different regions of Canada, and it is possible to encounter snow out of season, hiking and backpacking in this instruction is restricted to the method of foot travel cross-country in the Canadian climate from spring to fall. Winter camping, snowshoeing, cross-country ski touring, mountaineering and glacier travel will be covered separately.

DURATION AND INTENSITY LEVEL OF THE ACTIVITY

33. Reasonable durations and intensity level according to age and training background has been developed in the progression matrix at Annex A.

ENVIRONMENTAL CONSIDERATIONS

34. Only the safety of the participants will supersede the priority with which environmental stewardship is followed.

35. Waste management for personal hygiene, food scraps, food containers and human waste during hiking activities will follow camping skills of “minimum impact” at a minimum and “leave no trace” in optimum conditions.

36. The instructor to cadet ratios will limit group sizes. The maximum allowable visitors at campsites will limit size of tripping groups. Special considerations must be given to environmentally sensitive areas, minimal impact must be imposed onto any given environment. It is better to separate large groups into smaller units and space-out the departure of each smaller group so that no large, intrusive group of hikers block-up sections of a path or an area visited. Campsites (established or wilderness) should not have to support more than 15 visitors.

WEATHER CONSIDERATIONS

37. Know the weather forecast, learn how to forecast weather.

38. It is common to hike and backpack in the rain and fog but if it interferes with reasonable visibility or strong winds accompany the rain then it is necessary to take extra precautions. Spacing between hikers should be diminished during periods of poor visibility, be aware that precipitation may affect water levels and the stability of the terrain being crossed.

39. In case of lightning, shelter should be sought, if not in a building (cabin) then in a dense stand of trees if available. Lightning precautions below must be followed:

- a. Stay off high peaks, ridges, spires, narrow valleys and large bodies of water.
- b. In case of storm forecast, do not plan to hike such formations as the ones listed above.
- c. Keep track of weather forecast either by communications or by forecasting the weather yourself, keep track of storm movements.
- d. Avoid shallow caves and overhangs, it's not because you are sheltered from the rain that you are automatically sheltered from lightning.
- e. Keep a safe distance from metal and graphite objects (paddles, climbing equipment, walking poles, tripods or external framed packs); cache them away and retrieve them later if necessary.
- f. Change location if your hair stands on end.
- g. Insulate yourself from the ground using a backpack or air mattress, minimize your height and crouch down feet together, do not lay down completely.
- h. If travelling as a group, spread out (10 m apart).
- i. Be prepared to administer appropriate first aid (i.e. CPR, electrical burn, blunt trauma, shock).
- j. Learn the principle of the "Cone of Protection".

40. Although extremely cold or hot temperatures may not interfere directly with hiking, activities must be adapted accordingly; extra or specialized clothing and equipment may be necessary. Special consideration should be given to appropriate clothing such as outer layers used for wind and water protection, footwear and living equipment such as tents, sleeping bags and water containers. Hiking instructors/leaders must be trained to recognize signs of heat/cold-related illnesses, treatment and prevention.

LIMITATIONS

41. Hiking is limited by the following conditions. These conditions preclude hiking/backpacking tripping from beginning and also direct its cessation as quickly as safely possible:

- a. YDS Class 3 and lesser terrain, Class 4 and 5 are permissible as climbing activities and therefore must meet the requirements listed in that chapter.
- b. Be aware and plan accordingly during hunting seasons, environmentally sensitive areas or times of the year, avalanche season, warm days but frosty nights seasons/altitudes; rain or tornado seasons.
- c. Most hiking and backpacking will occur during daylight hours. Hiking after dark or prior to sunrise must take the low visibility condition into consideration. Hiking in low visibility will not take place in dangerous conditions where a slip or fall could be dangerous, e.g. on a steep side of a hill, in a dense brush near waterways, near a highway. Light and communication must be used to keep the hiking group together, e.g. headlamps, glow sticks, reflective tape and verbal communication.
- d. When hiking on slippery surfaces near water or crossing obstacles over water, backpackers must untie chest straps and waste belts so they can free themselves readily if necessary.
- e. Hiking groups will not separate unless it was previously arranged.

RISK ASSESSMENT AND MANAGEMENT

42. Certain inherent risks exist in all hiking activities, e.g. physical injury such as sprained/broken ankles, cold illnesses and equipment loss or damage. The safety regulations set for the Canadian public, service members and CCM members have for purpose to reduce the inherent and accidental risks involved with activities developed around the wilderness. The following lists some points to be considered in risk assessment and management of hiking activities:

- a. participants: number, age, qualifications, experience;
- b. temperature;
- c. equipment: necessary, required, desired, personal and group;
- d. skill level, qualifications and experience of the leader/instructor; and
- e. support and resources.

DEBRIEF

43. The personal challenges each participant will meet can be discussed in a learning/supportive environment. Group leaders should be especially aware of difficulties some participants may have encountered and use judgment in adapting group debriefs. It may be more appropriate to discuss some issues in private. Depending on the intensity of the experience, some participants may require some personal time or a team activity immediately following activity. Staff, especially developing leaders will require special attention and debrief.

LOGBOOK

44. Many hikers may wish to keep a personal logbook or journal of their hiking/backpacking activities, qualifications, experience and trips. Such a personal logbook may be used to establish suitability for future backpacking activities, courses or instructor positions. Trip and instruction logbooks are an important part of recording and reporting hiking activities. OPIs, leaders and instructor must keep a logbook of the activities under their charge, as it becomes a legal record of the activity.

ANNEX A
HIKING AND BACKPACKING PROGRESSION MATRIX

Age	Star Level	Intensity of the Activity	Delivery Method	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-18	Green to Gold (Note 1)	Familiarization	Day Instruction/Trip	Flat Terrain	1 and 2	None	Max 30 Min 4	1:10	LHQ	CIC/CIs	Detachment
	Green to Gold (Note 1)	Familiarization	Day Trip	Up to Class 1	1 to 4	None	Max 30 Min 4	1:10	LHQ	CIC/CIs Local SME	Detachment
13-18	Red to Gold (Note 1)	Basic	Day Trip/ Overnight Trip	Up to Class 2	1 to 4	None	Max 20 Min 4	1:10	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
14-16	Silver to Gold (Note 1)	Basic	Overnight Trip	Up to Class 2	1 to 4	None	Max 20 Min 6	1:10	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
15-17	Silver to Gold (Note 1)	Intermediate	Overnight Trip	Up to Class 3	1 to 4	Bronze	Max 15 Min 6	1:5	LHQ/Zone	CIC/CIs Local SME Contract With Trade	Detachment/ Region
16-17	Gold (Note 1)	Advanced	Wilderness Trip	Up to Class 3	1 to 4	Bronze	Max 15 Min 6	1:5	Zone/Region	CIC/CIs Local SME Contract With Trade	Detachment/ Region/ National
17-18	NSCE & MC	Advanced	Wilderness Trip	Up to Class 3	1 to 4	Bronze	Max 15 Min 6	1:5	Zone/Region	CIC/CIs Local SME Contract With Trade	Detachment/ Region/ National
<p style="text-align: center;">NOTE</p> <p>Gold Star level in this chart includes NSCE and MC unless those levels are separately identified.</p>											

Figure 7A-1 (Sheet 1 of 2) Hiking and Backpacking Progression Matrix

Classification of Activity (YDS)	
Flat terrain	
Class 1: Hiking	
Class 2: May contain some simple scrambling, with possible occasional use of hands	
Class 3: Scrampling; handrails, spotting	
Class 4: Simple climbing often on exposed surfaces, ropes are usually used, natural protection can be found. A fall on a Class 4 could severely injure a person, leave them permanently disabled or dead.	
Safety Skills	
1	Displays good response and behaviour to direction
2	Can activate rescue communications
3	Can navigate and find a route
4	Recognizes danger and backs off

Figure 7A-1 (Sheet 2 of 2) Hiking and Backpacking Progression Matrix

ANNEX B

CLIMBING CODE¹

1. A climbing party of three is the minimum, unless adequate prearranged support is available. On glaciers, a minimum of two-rope teams is recommended.
2. Rope up on all exposed places and for all glacier travel. Anchor all belays.
3. Keep the party together, and obey the leader or majority rule.
4. Never climb beyond your ability and knowledge.
5. Never let judgment be overruled by desire when choosing the route or deciding whether to turn back.
6. Carry the necessary clothing, food and equipment at all times.
7. Leave the trip itinerary with a responsible person.
8. Follow the precepts of sound mountaineering as set forth in textbooks of recognized merit.
9. Behave at all times in a manner that reflects favourably upon mountaineering, with minimum impact to the environment.

¹ Reprinted with the permission of the publisher from *Mountaineering: The Freedom of the Hills*. 6th ed. Don Graydon and Kurt Hanson (Eds), Seattle, WA: The Mountaineers, 1997.

ANNEX C

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CHAPTER 8

MOUNTAIN BIKING

DESCRIPTION OF ACTIVITY

1. Mountain biking is defined within this chapter as any biking on trails and secondary roads. Biking on trails will from here after be referred to as off-road biking. Biking on secondary roads will from here after be referred to as road biking.

2. For the purpose of training in the CCM, mountain biking activities have been divided into six levels with two additional training components; introductory training and care and maintenance.

3. The care and maintenance training components are:

a. **Introductory Training**

- (1) safety while riding;
- (2) rules of the road;
- (3) hand signals;
- (4) selecting and fitting a bike;
- (5) equipment required for biking;
- (6) formations for riding;
- (7) stopping procedures;
- (8) communication while on bike; and
- (9) changing gears.

4. Care and maintenance training is essential for insuring that the bicycles and all equipment are properly cared for. Care and maintenance lectures should reflect the level of the training with more care and maintenance being required at higher levels of training. The use of SMEs is recommended for insuring that all bicycles are given an annual tune-up.

4A. **Rating Systems.** Many rating systems exist for mountain bike trails. The CCM rating system is a simplified version of the International Mountain Bicycling Association (IMBA) Trail Difficulty Rating System (TDRS). The IMBA TDRS (Figure 8-1) was created to help trail users make informed decisions, encourage visitors to use trails that match their skill level, manage and minimize risk, improve the outdoor experience and aid in the planning of trails and trail systems. The IMBA TDRS is divided into five categories based on width, trail surface, trail grade, obstacles and technical features. The CCM rating system combines similar categories of the IMBA TDRS creating three categories of trail conditions:

- a. **Familiarization Trails.** Mostly flat, hard packed surfaces with some hills that require limited skill to ascend and descend. Familiarization trails conform to the standards of the IMBA TDRS categories of "Easiest" and "Easy".
- b. **Intermediate Trails.** Some loose surface with minor obstacles such as roots and rocks with a variety of moderate hills that require skill to ascend and descend. Intermediate trails conform to the standards of the IMBA TDRS category of "More Difficult".
- c. **Advanced Trails.** A mix of flat, loose and technical terrain including hills with a variety of ascents and descents on steep and uneven terrain, cornering and obstacles such as roots, rocks and logs throughout the trail. Experienced trails conform to the standards of the IMBA TDRS categories of "Very Difficult" and "Extremely Difficult".

Trail Difficulty Rating System






	Easiest White Circle 	Easy Green Circle 	More Difficult Blue Square 	Very Difficult Black Diamond 	Extremely Difficult Dbl. Black Diamond 
Trail Width	72 in. or more	36 in. or more	24 in. or more	12 in. or more	6 in. or more
Tread Surface	Hardened or surfaced	Firm and stable	Mostly stable with some variability	Widely variable	Widely variable and unpredictable
Average Trail Grade	Less than 5%	5% or less	10% or less	15% or less	20% or more
Maximum Trail Grade	Maximum 10%	Maximum 15%	Maximum 15% or greater	Maximum 15% or greater	Maximum 15% or greater
Natural Obstacles and Technical Trail Features (TTF)	None	Unavoidable obstacles 2 in. tall or less	Unavoidable obstacles 8 in. tall or less	Unavoidable obstacles 15 in. tall or less	Unavoidable obstacles 15 in. tall or greater
		Avoidable obstacles may be present	Avoidable obstacles may be present	Avoidable obstacles may be present	Avoidable obstacles may be present
		Unavoidable bridges 36 in. or wider	Unavoidable bridges 24 in. or wider	May include loose rocks	May include loose rocks
			TTF's 2 in. high or less, width of deck is greater than half the height	Unavoidable bridges 24 in. or wider TTF's 4 in. high or less, width of deck is less than half the height Short sections may exceed criteria	Unavoidable bridges 24 in. or narrower TTF's 4 in. high or greater, width of deck is unpredictable Many sections may exceed criteria

Figure 8-1 IMBA TDRS (www.imba.com)

5. The mountain bike levels are:
- Level 1 – Familiarization Ride.** A familiarization ride is intended to introduce cadets to mountain biking. This ride will also allow the cadets to get used to the riding formations and communication signals used within the group.
 - Level 2 – Day Trip On Road.** The day trip is intended to allow cadets to build on the skills learned during the familiarization ride. Cadets can also prepare for multi-day trips by beginning to carry light loads. Carrying light loads will give the cadets the opportunity to experience the new balance required while working with a loaded bike.
 - Level 3 – Day Trip Off-road.** This trip is intended to allow cadets to build on the skills learned in Level 1 and 2 training. Cadets can progress to more difficult terrain off-road. Carrying light loads is recommended to prepare for higher-level training.
 - Level 4 – Multi-Day Trip On Road.** Multi-day trips are intended for cadets with advanced knowledge and skills in mountain biking.
 - Level 5 – Multi-Day Trip Off-road.** Multi-day trips are intended for cadets with advanced knowledge and skills in mountain biking. Off-road trips will be more demanding and will require greater technical skills in off-road riding.
 - Level 6 – Multi-day Trip Off-road.** Highly intensive advanced training to be conducted in the most demanding environments.

AIM OF ACTIVITY

6. The aim of mountain biking within the CCM is to introduce cadets to the sport of mountain biking. Mountain biking also combines other skills such as communication, camping, physical fitness, leadership, and problem-solving that are taught in the CCM. Cadet activities can be supplemented with local biking groups and SMEs.

CANADIAN REGULATIONS CONCERNING SPECIFIC ACTIVITIES

7. The Canadian regulations surrounding the use of bicycles are derived mainly from the Highway Traffic Act for each province (this act is given a different name in some provinces). Bicycles are required to follow all rules and regulations outlined in the provincial legislature.

MILITARY REGULATIONS

8. There are currently no military regulations surrounding the use of bicycles. Some military bases require groups using bicycles to have vehicle support in the rear and front at all times when they are travelling on roads.

CCO SAFETY REGULATIONS

9. Cadets will never ride with more than one person on a bicycle. The only exception to this rule is if the bicycle is specifically designed to have multiple riders. In this case the number of riders will be determined by the individual bike specifications.

10. Cadets are required to have vehicle support in the rear, or on route to, at all times while travelling on roads. Cadets will never travel on freeways, or limited access highways. Cadets are permitted to travel on regional roads and secondary roads. While travelling off-road vehicle support is not necessary, unless the training is taking place on a military base that requires vehicle support. The group should be self-sufficient. Vehicles must have pre-determined extraction points for off-road training in the case of an emergency.

AUTHORITY LEVEL

11. Appropriate authority must be granted to carry out all forms of mountain biking activities. The authority is designated in the progression matrix at Annex A.

GOVERNING BODIES

12. There are no current national governing bodies surrounding the use of bicycles. Each province is responsible for regulating bicycle use. The Highway Traffic Act in each province determines the regulations for bicycle use.

13. Although there is no official governing body there are many well-developed cycling programs in Canada. Some of the cycling offices include:

- a. BTAC (Bicycle Trade Association of Canada) 1-866-528-BTAC (2822).
- b. CMIC (Canadian Mountain Bike Instructor Certification) this is only available in British Columbia 604-931-6606.
- c. National and provincial contacts can be found at Annex B.

EQUIPMENT REQUIREMENTS

14. Safety equipment varies from province to province; however the CCM will follow one set of regulations for all provinces. These regulations are designed to meet or exceed the regulations of all provinces.

15. Safety equipment for each participant:

- a. **Canadian Standards Association (CSA) Approved Helmet.** The helmet must be snug and stable with proper chinstraps. The chinstraps must hold the helmet in the correct position on the head for proper protection. If a helmet suffers a crash or severe blow of any type the helmet must no longer be used.
- b. **Bicycle.** With both front and rear braking system, signaling device, i.e. horn or bell, red light or reflector in the rear, white light in the front, red reflectors in the rear, white reflectors in the front. Lights must be used when travelling in night or low light conditions.
- c. **Clothing.** Pants must be tucked in, tapered or restricted to prevent from getting caught in the gear mechanism.
- d. **Water.** Cadets must have water with them while on mountain biking activities. Water bottle holders with water bottles can be mounted to the bicycle frame, or water bottles can be carried in panniers, or a camel pack hydration system can be used (camel pack hydration systems are the optimal choice for mountain biking activities).
- e. **Day Pack.** Panniers or backpacks must be used for Level 2 to 6 training. Day packs are not to exceed 30 L.
- f. **Reflective Vest.** Each group must have at least the rear person wearing a safety vest at all times.

16. Safety equipment require for the group:

- a. **First Aid Kit.** Must be complete with enough supplies for the number of members in the group.
- b. **Communications.** Communication within the group must be established in introductory training. Each group must have at least one method of contact with the safety vehicle. Group leaders must have visual contact with all participants at all times during the training.
- c. **Extra Food and Water.** The safety vehicle must carry extra food and water in case of the needs for re-supply. Individual groups will carry water purification systems appropriate to the local climate.
- d. **Basic Repair Kit.** Basic repair kits will hold maintenance tools to allow for complete tire change, chain link removal, and brake tightening.
- e. **Safety Vehicle.** Must carry complete backboard change and all first aid evacuation equipment.

RECOMMENDED EQUIPMENT LIST

17. Participants may choose to wear sunglasses, biking shorts, extra padded seat covers, gloves, full face guard helmets, biking shoes and appropriate peddle attachments, bicycle computer, handlebar bag, reflective vest, rear view mirror or biking shirts. All camping equipment must be carried in panniers and day packs for Level 4 to 6 training. Level 4 and 5 training should try to be as self-sufficient as possible. Level 6 training activities must be completely self-sufficient.

18. Extra group equipment can be carried in the safety vehicle. Extra equipment can include wheel frames, tire inner tubes, complete bicycles, horns, bells, lights, batteries, helmets, tire patch kit, Allen wrenches, bike lube, pressure gauge, screwdriver set, chain, any extra repair items designated by SMEs. When packing for a mountain biking trip it is very important to consider space restrictions. Bikes are very limited in the amount of equipment that they can carry for several reasons. Day packs that are too big will become a safety hazard, and thus are limited to 30 L. Also panniers (both front and rear) cannot hold as much gear as a regular hiking pack would. When planning for tripping group leaders should keep these factors in mind.

RATION REQUIREMENTS

19. IMPs or fresh rations can be used in biking activities. High-energy bars and sports drinks are recommended as they will replenish depleted stores from the body and are very compact.

20. Appropriate amount for the number of meals expected to be served. One extra meal should be carried in case of any sort of delay on Level 2 to 6 training.

21. Preparation cooking over single burner mountain stoves is optimal as these stoves take up very little room. Rations can also be eaten cold if cooking equipment is not available. Eating cold rations is not recommended for extended trips.

TRANSPORTATION REQUIREMENTS

22. When transporting bicycles, legislation dictates that all cargo must be secure. To achieve this bike brackets can be used inside of a cube van. It is the responsibility of the group leader to ensure that bikes are secure prior to all transportation. Bicycles can be individually wrapped in blankets and secured inside of a closed vehicle. Trailers can be used with appropriate bicycle brackets. Car mounted racks can be used to transport a smaller number of bicycles.

23. **Safety Vehicle.** Safety vehicles must travel in rear of, or on route to, all groups while on roads. The hazard lights must be on at all times while training is in progress, even when stopped for short breaks. Some military bases require that a second vehicle be in front of the group while on base. This vehicle must also have hazard lights on while training is in progress.

24. **Evacuation Vehicle.** The evacuation vehicle, can be the safety vehicle, must be capable of transporting an immobilized person on a backboard. If the evacuation vehicle is the safety vehicle and is away on an emergency, all training must stop. Training cannot take place without a safety vehicle. Having an additional vehicle for emergency use is optimal however this is not a requirement for training.

CADET SKILL LEVEL

25. All cadets and staff must be briefed on the Highway Traffic Act prior to undergoing a familiarization ride. Any other municipal legislation or base regulations should be part of this briefing.

26. All cadets and staff will perform a pre-ride check of all personal equipment and bicycles prior to any movement. Staff is responsible for not only their own equipment but also for checking the group equipment and all cadets' equipment.

27. Cadets and staff must show proficiency in familiarization ride to be permitted to progress to day trips. Proficiency in this case also includes appropriate physical fitness level to complete the training.

28. Proficiency at the day trip level must be exhibited prior to multi-day trips.

29. Progression from familiarization ride to day trip to multi-day trip is advisable only when the group leader or SME feels that all participants are capable of completing the task successfully and safely.

30. Multi-day trips should be reserved for more senior cadets who have already participated in Level 1 and 2 training and who have displayed a particular interest in continuing on with mountain bike training.

31. All cadets should have a basic understanding of care and maintenance prior to conducting Level 2 and 3 training. All repairs must be done under the supervision of the group leader or SME.

PHYSICAL FITNESS

32. In order to participate in mountain bike training, cadets must first participate in two periods of introductory training. The physical fitness requirements are outlined in the progression matrix at Annex A for each level of activity.

33. Although physical fitness levels are given as an indication of physical fitness required for the training, this is only a guideline. For Level 2 and 3 training, the aerobic fitness of participants should also be considered when choosing a route. Group leaders who are unsure of the endurance of expected candidates are encouraged to do more Level 2 and 3 training, increasing speed and length of the trip, to ensure success and suitability of candidates at Level 4 and 5. Level 6 requires the highest level of physical fitness and is expected to be the most demanding training level. Instructors should be at least at the same level of fitness as participants and should be setting an example for the whole group.

QUALIFICATIONS, EXPERIENCE AND FITNESS OF LEADERS AND OPI

34. For introductory and Level 1 training, officer staff experienced in mountain biking can instruct training. Ensure that introductory training covers all required material as outlined in this chapter.

35. Since there are no current national authorities on mountain biking it is suggested that local SMEs be sought to aid in training. CANBIKE offers road biking and introductory bike handling training. For group leaders who are not qualified by CANBIKE training at least one level higher than the intended training is required. Group leaders should maintain a higher level of proficiency on the skills being taught than is expected of the cadets. Leaders must set the example for cadets to follow. Fitness level should also be higher than that expected of the cadets.

36. For instruction on care and maintenance, SMEs should be consulted when basic repairs exceed the knowledge of the group leader. All group leaders must be able to perform basic repairs to tires, brakes, and chains to conduct Level 2 and 3 training. For Level 4 to 6 group leaders must be able to repair a bike in remote locations. Major repairs need to be handled by SMEs or through professional bike repair.

37. Bike repair courses can be taken through local cycling shops or through BTAC.

38. For Level 1 to 3 training group leaders must have standard first aid.

39. For Level 4 to 6 training in remote areas the group leader should hold wilderness first aid or wilderness first responder qualifications. Leaders must be able to recognize potentially dangerous situations and maximize prevention in all circumstances. Group leaders must be ready for any circumstance in remote locations and be able to respond in an appropriate and timely manner.

40. Group leaders should have extensive prior experience for the level of training being conducted and personal experience at a higher level than being conducted. The use of SMEs is highly recommended for Level 4 and 5 training. SMEs must be employed at Level 6.

REQUIRED PREPARATORY WORK

41. A complete recce of all training areas is required prior to taking cadets on any mountain biking trip. When physical recces are not possible a map recce will suffice. When a map recce is to replace a physical recce, local SMEs should be consulted to help determine local conditions and difficulty of the terrain. Without exception the group leader shall carry out a physical recce of the training area when Level 6 training is being conducted.

42. Required plans with local authorities/rear party for Level 2 and 3 training group leaders should have a good knowledge of the local conditions. For Level 4 and 5 training it is highly recommended that local SMEs be contacted to help with planning training.

43. Each group must have contact with the safety vehicle. Contact by radio, cell phone or satellite phone can be used.

44. Each group must have at least one map of the pre-determined route. Having one map for the group leader and one for the cadet leading the group is suggested. Also the safety vehicle and any other support vehicles must have maps with the pre-determined routes. All maps should also show emergency evacuation points. Emergency evacuation points are to be given individual and separate names to prevent confusion in case of an emergency.

45. The OPI must be a commissioned officer for all training. Each group must have an officer escort. Senior cadets can, and are encouraged to lead the group, under officer supervision.

46. The OPI must be an officer who is familiar with cadet regulations surrounding training, adventure training, and mountain bike training. The OPI must also exhibit calm leadership skills and be able to recognize dangerous situations. The safety of the entire group, including SMEs is the responsibility of the OPI.

47. SMEs who are employed to help with training must be deemed to be equivalent in experience to at least a platoon commander.

INSTRUCTOR TO CADET RATIOS

48. Refer to progression matrix at Annex A.

MAX AND MIN NUMBER OF PARTICIPANTS

49. The minimum number of participants for any training activity is two plus one officer. Note that in Level 3 training gender specific staff must accompany cadets.

50. Once groups begin a planned route the group will not break up. The training will be conducted as a group. If an emergency situation occurs, all training will cease and the group will remain together until the situation is resolved (refer to emergency planning).

51. The maximum number of participants for any one activity is 30, including all staff. This number does not include support vehicles or the safety vehicle.

52. In cases where fragile environments are being used for training, this number will be reduced dependant on the local conditions. SMEs should be consulted to determine the maximum number of participants in these situations.

MANAGEMENT GUIDELINES

53. All biking should be done in proper formation and the slowest rider should determine the speed of the ride. Put the slower riders near the front of the group, but not as the lead rider.

54. The use of whistle commands is suggested to ensure effective communication.

55. Cadets must be given a stopping procedure prior to conducting training. This should include not remaining on the road while stopped and not stopping on a hill. All stopping should take place on level ground where there is sufficient room for all participants to stop. The exact stop location is to be determined by the lead rider in the group.

56. Cadets must be instructed on proper use of gears to prevent chains from falling off resulting in increased likelihood of accidents.

57. Tires should be pumped to the specifications on the individual tire. Do not over pump the tires or they will be more prone to popping.

58. Be advised that when road conditions change, from pavement, to trails, to gravel braking power will change. Proper braking technique must be taught prior to undergoing training.

59. Leaving enough space between riders is essential while on bikes. More space is required when going up or down hills and in difficult terrain.

TRAINING GUIDELINES

60. All introductory training must be conducted prior to the introductory ride.

61. For Level 2 and 3 training more time must be spent on care and maintenance of equipment. SMEs should be consulted when repairs are beyond the knowledge of the group leader.

TIME OF DAY/YEAR REGULATIONS

62. Level 1 and 2 training must be conducted during the day.

63. Under the guidance of an SME night riding is permitted under special educational circumstances. If night riding is to take place all bicycles must be equipped with front white lights and reflectors, rear red lights and reflectors. In this case all cadets and staff must also wear reflective vests.

64. Mountain bike training will be limited to spring, summer and fall training. Cadets will not ride in snow or ice.

DURATION AND INTENSITY LEVEL OF THE ACTIVITY

65. Mountain biking training will never last longer than originally intended.

66. Maintaining an appropriate level of intensity to complete the training is the responsibility of the group leader. If the original intensity is deemed to be too much for the group the leader will adjust training as required. Any adjustment to training must be relayed to all other groups and to safety/support staff. New plans must also include alternation of emergency planning. For details, refer to the progression matrix at Annex A.

ENVIRONMENTAL CONSIDERATIONS

67. Waste management for personal hygiene, food scraps, food containers and human waste for biking trips and training will follow camping skills of "minimum impact" at minimum and "no trace" in optimum conditions. The impact philosophy of camping and outdoor adventure is established in Chapter 1 and in the RCAC References Book.

68. Groups will be limited by the instructor to cadet ratios. The maximum allowable visitor at campsites will limit size of tripping groups. Special considerations must be given to environmentally sensitive areas, minimal impact must be imposed onto any given environment. Campsites (established or wilderness) should not have to support more than 15 visitors.

69. Environmentally sensitive areas must be respected. In areas of pristine wilderness group size will be limited based on suggestions of local SMEs. Any inadvertent damage to environmentally sensitive areas must be reported to local SMEs. If necessary the corps or group responsible will repair any damage under the direction of the local SMEs.

WEATHER CONSIDERATIONS

70. Location and clothing requirements are to be determined by, and are the responsibility of the group leader. Local weather forecasts should be consulted in advance of the planned training. Seasonally appropriate comfortable clothing is recommended.

ABSOLUTE STOP CONDITIONS

71. If an emergency situation arises all training will be stopped immediately. Training will not resume until the situation has been resolved to the satisfaction of the group leader. All accidents or emergency situations will be reported to the OPI and to the safety vehicle. Protocol for minor and major first aid emergencies will be determined prior to undergoing training. In cases where the safety vehicle can assist they will do so promptly. If an emergency evacuation needs to take place, the safety vehicle and the group will move as quickly as possible to the evacuation point. The safety vehicle will have maps to local hospitals or medical centres with them. If necessary the safety vehicle will contact EMS and will escort EMS to the evacuation point. If EMS cannot reach the evacuation point the safety vehicle will transport the casualty to EMS and will follow EMS to the hospital. Safety at all times is the responsibility of the group leader.

RISK ASSESSMENT AND MANAGEMENT

72. Within this chapter there are some basic considerations for risk assessment guidelines. These guidelines are an outline but this is not an exhaustive list. The assessment of risk in individual situations is the responsibility of the group leader:

- a. temperature;
- b. equipment;
- c. age, and experience of participants;
- d. local weather conditions; and
- e. skill level of the leader.

DEBRIEF

73. The personal challenges each participant will meet can be discussed in a learning/supportive environment. Group leaders should be especially aware of difficulties some participants may have encountered and use judgment in adapting group debriefs. It may be more appropriate to discuss some issues in private. Depending on the intensity of the experience, some participants may require some personal time or a team activity immediately following activity. Staff, especially developing leaders will require special attention and debrief.

LOGBOOK

74. In order to progress to other/different mountain bike levels, participants will have to keep a record of their experience in the form of a logbook. Logbooks and journals are especially appropriate for the purpose of review and reflection in mountain bike activities since most participants will experience very different and personal things. A logbook or a journal offers the opportunity to log all the appropriate information and the many important details of the caving activity. Either the OPI or the SME/mountain biking leader must sign off logbooks if they are to be used as an assessment of performance or experience.

ANNEX A
MOUNTAIN BIKE PROGRESSION MATRIX

Age	Star Level	Intensity of the Activity	Delivery Method	Progression of the Activity	Level	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-18	Green to NSCE	Famil	Lecture	2 x 40-min Periods	Level 1	None	25	1:20	LHQ	First Aid	Detachment
12-18	Green to NSCE	Famil	Lecture	1 x 40-min Period (Note 1)	Level 1	None	25	1:20	LHQ	First Aid	Detachment
12-18	Green to NSCE	Famil	Familiarization Ride	30-60 min	Level 1	None	30	1:10	LHQ	First Aid	Detachment
14-18	Red to NSCE	Intermediate	Day Trip, Road	1 Day, 40-60 km (Note 2)	Level 2	Bronze	30	1:10	LHQ/Zone/Region	First Aid	Detachment/Region
14-18	Red to NSCE	Intermediate	Day Trip, Off-road	1 Day, 40-60 km (Note 2)	Level 3	Bronze	30	1:10	LHQ/Zone/Region	First Aid	Detachment/Region
15-18	Silver to NSCE	Advanced	Multi-Day Trip Road	3-4 Days, 40-60 km (Note 2)	Level 4	Silver	30	1:10	LHQ/Zone/Region	Wilderness First Aid or Wilderness First Responder Qualifications	Detachment/Region
15-18	Silver to NSCE	Advanced	Multi-Day Trip Off-road	3-4 Days, 40-60 km (Note 2)	Level 5	Silver	30	1:10	Zone/Region/National	Wilderness First Aid or Wilderness First Responder Qualifications	Region/National
16-18	NSCE	Advanced	Multi-Day Trip Off-road	4+ Days, 40-60 km (Note 2)	Level 6	Gold	30	1:05	Zone/Region/National	Wilderness First Aid or Wilderness First Responder Qualifications	Region/National
<p style="text-align: center;">NOTES</p> <ol style="list-style-type: none"> 1. Additional care and maintenance periods of instruction are suggested for multi-day trips. 2. 40-60 km depending upon the terrain and difficulty of the trip. 											

Figure 8A-1 Mountain Bike Progression Matrix

ANNEX B

NATIONAL AND PROVINCIAL CYCLING ASSOCIATIONS

Alberta Bicycle Association

Executive Director: Shannon Fikkert
11759 Groat Road
Percy Page Centre
Edmonton, AB T5M 3K6
Telephone: 780-427-6352
Fax: 780-427-6438
Email: office@albertabicycle.ab.ca
Website: www.albertabicycle.ab.ca

Bicycle Newfoundland and Labrador

President: John French
P.O. Box 2127, Station C
St. John's, NF A1C 5R6
Telephone: 709-754-1800
Fax: 709-754-2701
Email: bnl@bnl.nf.ca
Website: www.bnl.nf.ca

Bicycle Nova Scotia

Administrator: Ike Whitehead
P.O. Box 3010 South
Halifax, NS B3J 3G6
Telephone: 902-425-5450, ext. 316
Fax: 902-425-5606
Email: canoens@sportns.ns.ca
Website: www.bicycle.ns.ca

Canadian Cycling Association

702 – 2197 Riverside Drive
Ottawa, ON K1H 7X3
Telephone: 613-248-1353
Facsimile: 613-248-9311
Email: general@canadian-cycling.com

Cycling Association of Yukon

President: Bob Boorman
P.O. Box 6158
Whitehorse, YK Y1A 5L7
Telephone/Fax: 867-668-2321
Email: josee.bob@yt.sympatico.ca

Cycling British Columbia

General Manager: Tanya Camposano
332-1367 West Broadway
Vancouver, BC V6H 4A9
Telephone: 604-737-3034
Fax: 604-737-3141
Email: office@cycling.bc.ca
Website: www.cycling.bc.ca

Cycling PEI

Executive Director: Karen Cameron
P.O. Box 302
Charlottetown, PE C1A 7K7
Telephone: 902-368-4110
Fax: 902-368-4548
Email: cycling.pei@pei.sympatico.ca
Website: <http://www3.pei.sympatico.ca/~cycling.pei/>

Fédération québécoise des sports cyclistes

Coordonnateur général: Pierre Thibault
4545 Pierre-de-Coubertin
Montréal, QC H1V 3R2
Telephone : 514-252-3071
Fax: 514-252-3165
Email: info@fqsc.net
Website: www.fqsc.net

Manitoba Cycling Association

Executive Director: Mike McKee
200 Main Street
Winnipeg, MB R3C 4M2
Telephone: 204-925-5686
Fax: 204-925-5703
Email: cycling@sport.mb.ca
Website: www.cycling.mb.ca

Ontario Cycling Association

1185 Eglinton Avenue East
North York, ON M3C 3C6
Telephone: 416-0426-7242, ext. 7642
Fax: 416-426-7349
Email: info@ontariocycling.org
Website: www.ontariocycling.org

Saskatchewan Cycling Association

Executive Director: Warren Lister
2205 Victoria Avenue
Regina, SK S4P 0S4
Telephone: 306-780-9289
Fax: 306-525-4009
Email: cycling@ucomnet.unibase.com
Website: www.saskcycling.ca

Velo New Brunswick

President: Aaron Hershoff
P.O. Box 3145
Fredericton, NB E3A 5G9
Telephone: 506-773-7542
Email: hershoff@nbnet.nb.ca
Website: www.velo.nb.ca

CANBIKE Website: <http://www.canadian-cycling.com/English/home.htm>. Retrieved 25 October 2006.

CHAPTER 9

ORIENTEERING

DESCRIPTION OF ACTIVITY

1. Orienteering is the competitive sport of finding one's way between specified points across rough country, usually in unfamiliar terrain, using a map and a compass. Orienteering's navigational skills are easily combined to other adventure activities such as bicycling, canoeing, cross-country skiing and hiking. The Canadian Orienteering Federation classifies orienteering into the following categories:

- a. **Open or Class B Meets.** Beginner or recreational participants that do not have the age specific orienteering skills to participate in Class A meets.
- b. **Class A Meets.** The advanced class of orienteering competition, competitors must participate in age and gender specific categories, the level of difficulty is linked to the age/gender classifications. It is explained in this chapter.
- c. **Elite Classification.** For special elite level competitors usually at national and international competitions that may be considered special instead of Class A.

AIM OF ACTIVITY

2. Orienteering offers the perfect opportunity for hands-on application of map and compass work but is not limited to an extension of those skills. Basic orienteering can be done with no compass and simple maps or in a familiar build-up area. Orienteering can also be developed into the sport of competitive orienteering where participants race against one another to complete the route on which they are challenged. Three main skills are developed in orienteering: physical conditioning, concentration and three-dimensional thinking/navigation. Since most of the competition takes place usually for individuals (sometimes pairs or small teams) away from meet officials, the participants are personally responsible for their performance and ethical behaviour. As a result, strong traits of independence, sportsmanship and fair play are developed in orienteering participants.

CANADIAN REGULATIONS CONCERNING SPECIFIC ACTIVITIES

3. The Canadian Orienteering Federation dictates that nothing shall be done to prejudice the goodwill of landowners, lessees or public land administrators where orienteering is taking place. Orienteering participants must not run on or cross newly planted fields or growing crops. Orienteering participants must not damage any property such as fences, ditches and flowers. A participant whose right to be in an area is challenged shall stop, explain their presence, comply with any reasonable request (even abandoning the competition) and inform the challenger of the location of the nearest meet official. On reaching the finish, a report must be made to the OPI or Meet Director.

MILITARY REGULATIONS

4. Land use of private and public lands must be gained either by the military OPI or by the meet organizers.

CCO SAFETY REGULATIONS

5. The CCM will only participate in orienteering meets sanctioned by the Canadian Orienteering Federation (COF), its provincial/territorial/international partners or in events planned specifically by the CCM.

AUTHORITY LEVEL

6. Since there are very few inherent risks involved with the sport of orienteering, as applied by the COF, every level of this activity should be available at the LHQ, zone and regional level. Appropriate authority for those levels of activities must be granted. Larger multi-skill and multi-day events using orienteering, such as "adventure challenge" races must be authorize by the regional headquarters.

GOVERNING BODIES

7. The governing bodies are:
 - a. The Canadian Orienteering Federation
P.O. Box 62052, Convent Glen P.O.
Orleans, ON K1C 2R9
Telephone: 403-283-0807
Fax: 403-451-1681
Website: www.orienteering.ca
 - b. **Provincial Partners.** A full list of the provincial orienteering associations and local clubs is available on the COF Website.
 - c. International Orienteering Federation at www.orienteering.org.

EQUIPMENT REQUIREMENTS

8. The skills and sport of orienteering can be applied to many other activities, e.g. route marches, cycling, paddling and winter outdoor travel. The list below identifies the necessary equipment for the sport of orienteering by itself; other activities combined with orienteering will require additional equipment.
9. The following is a list of personal equipment required for training and competitive orienteering:
 - a. comfortable footwear (usually sturdy running shoes);
 - b. long sleeves and pants to protect from bugs, sun and branches;
 - c. map of the area indicating boundaries;
 - d. compass;
 - e. watch; and
 - f. safety whistle.
10. The following is an equipment list required for orienteering in general:
 - a. markers called controls with punches (either official COF controls or reasonable reproductions);
 - b. participant control cards;
 - c. flagging tape to mark off boundaries and glow stick for night orienteering;
 - d. washroom facilities;
 - e. water/fluid for replenishment; and
 - f. first aid equipment in sufficient quantity and type for the activity.

RECOMMENDED EQUIPMENT LIST

11. The following is a list of recommended equipment for the participation in orienteering activities:
 - a. comfortable clothes that offer protection against the elements as expected during the activity;
 - b. rain and wind wear;

- c. hats;
- d. orienteering specific maps and compasses;
- e. start and finish line administration/registration requirements; and
- f. sunscreen and insect repellent.

RATION REQUIREMENTS

12. Although the sport of orienteering can be practiced in endurance competitions spanning over several hours and days, this instruction covers the traditional application of the sport of orienteering, usually taking place in half-day session or evenings. If orienteering competition span over meal hours, then meals must be supplied or carried by the participants.

13. It is common for participants of orienteering activities to have high-energy food, easily prepared and digestible in a pocket or knapsack. In other events, it may be more practical to have meals served completely separate from the orienteering activity.

14. Fluids must be available in large quantities for the competitors and support staff. In longer events, competitors should carry water bottles or fluid stations must be available on the course.

TRANSPORTATION REQUIREMENTS

15. Access to and from the training area must be permitted freely and a safety and evacuation vehicle must be present at the closest vehicle access point.

CADET SKILL LEVEL

16. The basic skills of orienteering should be made available to every cadet. The development of advanced orienteering skills such as armchair techniques however should be introduced progressively to every cadet wishing to participate. Orienteering should be delivered with a “go as fast as you like” approach that does not force cadets into competitive situations. Cadets demonstrate a much better attitude towards orienteering when given the opportunity to develop confidence through positive experiences.

17. Cadets do not require any qualifications, experience or specific level of physical fitness to participate in orienteering. A natural progression however must be used for competitive activities. Cadets should place in reasonable finish positions during Class B meets prior to competing in Class A, age level or elite level meets. Also, the level of difficulty for a course will usually be linked to the age of the participants. At first, participants should be guided to compete at their “challenge” level instead of age level categories. Cadets competing in Class A meets will need to become certified members of COF.

18. Refer to the progression matrix at Annex A.

PHYSICAL FITNESS

19. There are no specific physical fitness levels required for participating in orienteering.

QUALIFICATIONS, EXPERIENCE AND FITNESS OF LEADERS AND OPI

20. Orienteering can be a relatively simple skill to teach. It can also develop into an intense coaching certification, meet official training and skill development program. Anybody with a basic exposure to orienteering can teach the basic skills but since many safety factors must be taken into considerations, only qualified orienteering instructors or COF meet officials can organize an event.

21. COF (and provincial partners) executive officers and Class A organizing officials with at least five years of experience or Level 2 technical officials certifications are considered SMEs. SMEs should be sought to advise units, zones and regions on course design, map development and championship competitions.

22. There must be at least a first aid qualified staff person present at the orienteering activity. In competitions of long duration (more than 4 h), mass numbers of competitors (75 or more) or endurance events, medical staff appropriate for number and types of expected injury is required.

INSTRUCTOR TO CADET RATIOS

23. The basic skills of orienteering can be instructed in a one instructor to 10 cadets ratio. For supervision at competitions, there should be a 1:10 instructor to cadet ratio. It is required to have at least two instructors available, one of which must act as a contact point – manager at the start point and the other at the finish. If extra staff personnel are available, some should run the course or be stationed at/near control points along the course.

MAXIMUM AND MINIMUM NUMBER OF PARTICIPANTS

24. The resources available dictate the maximum and minimum number of participants. However, be aware that like in other skills, the smaller the group, the more hands-on and the better the learning experience. In order to maximize the value of the orienteering experience, only 20 beginners from an organized group should be initiated to orienteering in a meet. Relatively small meets should be sought (approximately 50 competitors).

MANAGEMENT GUIDELINES

25. **Arrival at the Orienteering Meet.** Competitors should arrive together or at least rendez-vous 45 minutes prior to the start of the competition. All participants should attend the beginner's clinic prior to the race. Having a variety of instructors developing orienteering skills in cadets is an easy way to enrich the knowledge and experience of the participants. Beginner's clinics are a great way to give theoretical information to the participants in short, efficient sessions. They will also develop greater confidence in their abilities and gain valuable information regarding the orienteering course being run that day.

26. **Level of Competition.** Many cadets may wish to participate in competitive orienteering meets right away. Unless specific skills have been developed, staff should direct orienteering beginners to open or recreational competition. Although senior cadets may have very good map and compass skills, they may not possess enough "competition-orienteering" specific skills (i.e. physical fitness or concentration) to be successful at first. Initiate cadets to competitive orienteering gradually.

27. **Selection of Cadets.** Since orienteering at a competitive level is optional training, it is important that LHQ and zones staff recognize those cadets who want to participate and those who do not wish to participate.

28. Level of Participation

- a. Cadets participating in COF orienteering events should be encouraged to participate in gender and age-specific level categories. The COF regulates the following categories:

- (1) Age (as of 12-31) Male and Female:

- (a) **Junior** 12 and under M 12, F 12.

- (b) 13, 14 M, 14 F.

- (c) 15, 16 M, 16 F.

- (d) 17-19 M, 19 F.

(2) **Senior** 20-34 M, 20 F.

(3) **Master:**

(a) 35-44 M, 44 F.

(b) 45-54 M, 54 F.

(c) 55-64 M, 64 F.

(d) 65+ M, 65 F.

- b. Orienteering activities and events organized by the CCM outside of the COF umbrella; either at the LHQ, zone or regional level, should establish skill level categories.

29. If Green Star level 12-year-old cadets are participating, it may be more practical to have them compete in the 13-14 years old category so they compete with their peers from cadets. It could be detrimental to the feeling of accomplishment and self-confidence to have 12 years old separated from their teammates and made to compete with very young competitors (8-10 years old) outside of the Cadet program. It is also possible that some 17 years old may not have enough orienteering skills to compete against the general orienteering population in that age category. If cadets are to compete in categories outside of their age specific levels, the meet officials must grant prior permission and the cadets must understand that they may not be considered for medals.

30. **Level of Difficulty.** Instead of using set distances or a specific number of controls, the COF organized the levels of difficulty in orienteering courses according to the expected winning times. Difficulty levels span from Level 1 to Level 8. The course and the position of the controls become more difficult as the levels grow. Generally the controls of a Level 1 course will be set along trails, fields and be positioned close to simple handrails. Higher-level courses would have longer legs and provide complex route choices; they could require crossing features instead of following along them. The vegetation density could make the navigation more difficult and control point may not be located directly at prominent objects. The COF uses the following guidelines:

- a. Course categories winning time in minutes:

(1) **Level 1.** F 12, M 12, 25 min.

(2) **Level 2.** F 13-14, M 13-14, 30 min.

(3) **Level 3.** F 15-16, M 15-16, 45-50 min.

(4) **Level 4.** F 55-64, F 65+, M 65+, 50 min.

(5) **Level 5.** F 17-19, F 45-54, M 55-64, 50-55 min.

(6) **Level 6.** M 17-19, F 35-44, M 45-54, 55-60 min.

(7) **Level 7.** F 20-34, M 35-44, 70 min.

(8) **Level 8.** M 20-34, 90 min.

31. **Contacts and Recces.** Units participating in COF organized meets should establish contact prior to the event and explain their specific situations. Entrance fees may be waived for a lump sum purchase of maps in "open/recreational" or Class B meet events. It may also be possible for cadets to participate in one or two different versions of meets (e.g. a short course in the morning; a longer course in the afternoon; or paired up for recreational night orienteering). This is especially practical if cadets are travelling long distances to attend orienteering activities and they wish to get the most out of their outing. Cadets should arrive for the meet in ample time to get ready, warmed-up and to attend the beginners clinics usually held in conjunction with COF meets at least 45 minutes prior to start of event.

32. **Safety Briefing.** Every participant must attend the safety briefing for every orienteering meet. The briefing must include such vital information as:

- a. out of bound areas;
- b. safety bearing;
- c. absolute finish time;
- d. safety rules; and
- e. special guidelines as they apply to the particular course.

REQUIRED PREPARATORY WORK

33. **Required Plans With Local Authorities.** COF meets are organized in communication with local authorities and land owners. If CCM orienteering meets are organized, they should follow the COF protocols. If other activities are organized using orienteering skills without using the COF format of competition, proper safety and land use agreement plans must be established.

34. **Emergency Contacts.** Due to the short duration of orienteering events, it is not usually necessary for the group to carry a method of contact for other people to contact them. It is required however that at least one method of contact for emergencies be present with the group (i.e. cellular phones, handheld radios with a link to a base camp or quick access to pay phones).

NECESSARY PLANNING

35. Emergency Plans

- a. The whistle shall only be used by a participant in distress:
 - (1) in case of serious injury or medical emergency;
 - (2) if darkness is imminent; or
 - (3) after being lost for one hour, having made all reasonable attempts to return to the finish.
- b. Misuse of the whistle will result in disqualification from the event.

36. **Search for Overdue Orienteers.** The COF has a detailed plan, initiated in two phases that deal with overdue orienteers. SMEs filling the roles of meet directors or senior official must be appointed during the planning phase as the person responsible for activating rescue sequences for overdue orienteers.

TIME OF DAY/YEAR REGULATIONS

37. Orienteering usually take place early on the day of the meet, from early spring to late fall of each year. Due to sowing/harvest seasons, mating seasons and hunting seasons, orienteering may be suspended in certain areas periodically. It is possible to participate or organize orienteering events outside of those typical times as long as the necessary planning and preparation has taken place.

■ DURATION OF THE ACTIVITY

38. Most orienteering activities such as the ones expected with COFs meet will last from 20 minutes to three hours. Other applications of orienteering may however extend outside the normal time line: a daylong trek/challenge exercise, team events or a multi-day course completed either by mountain bike or canoe. Whatever the format, a time line must be made very clear to all participants and staff. "Must finish" times must be adhered to and search for lost cadets must be initiated as early as possible in the case of a missing person.

39. It is possible to use the basic principles of orienteering in the application of an “adventure challenge” race. The length of time over which the competition or event must be limited to 18 hours maximum in the case where sleep deprivation occurs. The age level of cadets participating in such an activity must be appropriate for the level of duress under which the activity will take place. Teenagers are not emotionally and physically developed for ultra-marathon race events that include difficult environmental conditions, sleep deprivation and technical skills. Many safety aspects of such an event must be modified to accommodate the age and the level of preparedness of the cadets. If a multi-day challenge race is organized and allow for at least eight hours of rest per 24-hour period, the race should still not extend over three days. A non-race event shall be considered as a multi-skill expedition and durations according to the main transport skill will be used to grant the authority to proceed with the activity.

ENVIRONMENTAL CONSIDERATIONS

40. Specific environmental considerations for orienteering have been discussed as part of other regulations in this chapter.

WEATHER CONSIDERATIONS

41. Many aspect of orienteering are influenced by the weather. Case specific decisions must be made to delay, cancel or continue with the meet. Military personnel OPI and meet director must each make a decision according to the conditions specific for the group participating. It may be that some competitions proceed but some or all the cadets are not allowed to take part, depending on the conditions, available resources and equipment.

42. If a decision is made to carry on with an orienteering activity during poor conditions, the participants must use the appropriate clothing according to the conditions. If such clothing is not available, then the OPI must withdraw the cadets from the competition and provide shelter or return to LHQ.

LIMITATIONS

43. The following conditions warrant a re-assessment of participation, if the risk is likely that the conditions will interfere with the orienteering, the activity must cease, delay or be cancelled:

- a. dangerous or unplanned weather; lightning, flood possibilities;
- b. conflicting or dangerous activities in the area, e.g.:
 - (1) proximity to ranges;
 - (2) hunting;
 - (3) car rallies; and
 - (4) suspicion of dangerous animals.

RISK ASSESSMENT AND MANAGEMENT

44. This chapter however has identified very specific safety guidelines and safety considerations to be included in every level of risk managements. The following list of factors is not exclusive:

- a. classification of the orienteering event, access and authority governing it;
- b. temperature and weather forecast;
- c. first aid and safety equipment available and required;

- d. age, experience and preparation of the participants; and
- e. leadership and SMEs.

DEBRIEF

45. Both cadets and staff should be debriefed after an orienteering event. Often, winners of such competitions will feel a certain amount of accomplishment but the other participants may require more input. It is difficult to equate a finish time with an actual performance. Cadets may benefit from a one on one debrief identifying the quality of their performance for example on accomplishing most of the controls correctly.

LOGBOOK

46. In order to progress to other/different orienteering events, participants will have to keep a record of their experience in the form of a logbook. Logbooks and journals are especially appropriate for the purpose of review and reflection in orienteering events since most participants will experience very different and personal things. A logbook or a journal offers the opportunity to log all the appropriate information and the many important details of orienteering events. Either the OPI or the SME/orienteering events leader must sign off logbooks if they are to be used as an assessment of performance or experience.

ANNEX A
ORIENTEERING PROGRESSION MATRIX

Age	Star Level	Intensity of the Activity	Delivery	Progression of the Activity	Class of the Activity	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Authority
12-14	Green to Gold (Note 1)	Familiarization/ Basic	Day Instruction	Recreational/ Open Category	Level 2	1 to 4	None	Max 20	1:10	LHQ	Detachment
13-15	Red to Gold (Note 1)	Familiarization/ Basic	Day Instruction	Open/ Class B	Level 2 to Level 3	1 to 7	None	No Limit	1:10	LHQ/Zone	Detachment/ Region
14-16	Silver to Gold (Note 1)	Basic/ Intermediate	Day Instruction	Class B	Level 2 to Level 3	1 to 7	None	No Limit	1:10	LHQ/Zone	Detachment/ Region
15-17	Gold (Note 1)	Intermediate/ Advanced	Day Trip	Class A – Age Level Specific	Level 5 to Level 6	1 to 7	Bronze (Note 3)	No Limit	1:10	LHQ/Zone	Detachment/ Region
16-17	NSCE & MC	Advanced	Day Trip	Class A/ Elite – Age Level Specific	Level 5 to Level 6	1 to 7	Bronze (Note 3)	No Limit	1:10	LHQ/Zone	Detachment/ Region
17-18	NSCE & MC	Advanced	Day Trip	Class A/ Elite – Age Level Specific	Level 5 to Level 6	1 to 7	Bronze (Note 3)	No Limit	1:10	LHQ/Zone	Detachment/ Region

NOTES

1. Gold Star level in this chart includes NSCE and MC unless those levels are identified separately.
2. Any new participant should first experience an Open/Class B meet prior to submitting to Class A age categories.
3. The physical fitness level identified is not a requirement, but a recommendation.

COF MEET CATEGORIES

1. Open/Recreational
2. Class B
3. T Class A – Age Level Specific
4. Elite – Age Level Specific

Figure 9A-1 Orienteering Progression Matrix

ANNEX B

REFERENCES

- Major Chapman, J.R. *Orienteering an Aid to Training*. London, England, The Cadet Supply Department, 1968.
- Orienteering "B" Meet Organizing Manual*. Orleans, The Canadian Orienteering Federation, Revised 1998.
- Orienteering Level 1 Coaching Certification Manual, NCCP*. Ellis, M. (Ed), The Canadian Orienteering Federation, 1983.
- Orienteering Level 2 Coaching Certification Manual, NCCP*. Lowry, R. (Ed), The Canadian Orienteering Federation, 1985.
- Stott, W. *Armchair Orienteering: A Practical Guide to Reading Orienteering Maps*. 3rd ed. Orleans, The Canadian Orienteering Federation, 1992.
- Stott, W. *Armchair Orienteering II: A Practical Guide to Route Planning*. Orleans, The Canadian Orienteering Federation, 1987.
- Stott, W. *Beyond Armchair Orienteering: A Practical Guide to Creating Orienteering Drills*. Orleans, The Canadian Orienteering Federation, 1993.

CHAPTER 10

RAFTING

GENERAL

1. Rafting, one of the paddling sports, is a method of river travel using an inflatable watercraft propelled by a group of paddlers.
2. The activity of rafting is not yet regulated by a recognized national/international association. Associations and civilian companies do exist, however, that offer this type of activity. This chapter will provide a list of recommended associations, including member companies, that offer this activity. Of course, many other companies offer this service as well, but they are not recognized/recommended owing to their safety standards.
3. As a rule, the activity takes no longer than one day and does not require sleeping outdoors. Certain companies may, however, offer packages involving several days of rafting, including nights spent outdoors. In such cases, norms, standards, and requirements become more stringent with respect to equipment, qualifications, skills, experience and safety.
4. All the recommended rafting companies are required to belong to one of the associations listed at paragraph 26., although they do not define all the parameters governing this activity.
5. In developing the guidelines governing this activity, we referred to the parameters cited in the chapter on paddling activities and to the criteria and parameters of the associations enumerated at paragraph 26.

PURPOSE OF THE ACTIVITY

6. In addition to the objectives in the chapter on paddling, rafting focuses on team spirit, stress management, decision-making, communication, physical fitness, paddling skills and the discovery and admiration of the cultural and natural riches found along the shoreline.

CANADIAN REGULATIONS¹

7. The recommended associations regulate certain safety norms and standards governing rafting. Consequently member-rafting companies are advised to submit an evacuation plan to the association evaluator for each river they use. This evacuation plan should address the following issues:
 - a. communication;
 - b. transportation of injured persons off the river;
 - c. transportation of injured persons to a medical facility; and
 - d. sites for evacuation off the river.
8. The evacuation plan must be approved by the association evaluator based on the following conditions:
 - a. Indicators for gauging and evaluating water levels must be placed at strategic points along the rivers where excursions are planned.
 - b. Statistics and data on the average daily water flow on rivers where excursions are planned must be procured from the provincial environment ministry, and excursion guides and leaders must be supplied with this data.

¹ Based on the standards of the Canadian Rivers Council (CRC).

- c. Equipment and services must be provided in accordance with established standards.
 - d. Associations must be allowed to inspect the company's equipment and service records.
 - e. All equipment must be inspected before commencing daily operations.
 - f. There must be sufficient personnel who are qualified according to the standards and fulfill the responsibilities of guides and excursion leaders.
 - g. Participation must be limited to persons who meet the prerequisites listed at Annex A.
 - h. Participants are encouraged to submit their recommendations and complaints to the association of which the company is a member.
 - i. The company must possess liability insurance worth at least one million dollars per event and covering bodily or material damage to its paid employees or volunteers **or to participants**.
9. All companies, organizers, excursion leaders or guides are required to complete a service record indicating all days and excursions completed. The record must contain the following elements:²
- a. the date of the excursion;
 - b. the duration of the excursion;
 - c. the name of the excursion leader;
 - d. the number of participants;
 - e. the route taken and section of the river;
 - f. the type of raft and means of propulsion; and
 - g. any unusual events or incidents.
10. The daily logbook must be approved and signed by the excursion leader.
11. The company logbook must contain certification papers covering first aid and cardiopulmonary resuscitation for all guides and excursion leaders.

CCM REGULATIONS

12. The above regulations conform to DAOD 5031-10, CFAO 50-04 and A-CR-CCP-030/PT-001. It is worth noting that DAOD and CFAO override all other publications, and we recommend that they be consulted during the planning phase of your activity.
13. **Prerequisites for Participation.** CCM members are eligible to participate in an excursion if they sign the participation form at Annex A.
14. Participants must also complete and sign the medical questionnaire at Annex B before leaving on the excursion. **Any person answering in the affirmative to any of the questions at Section A of the medical questionnaire may not participate in a rafting excursion.**

² Based on the standards of the CRC.

15. If the person is below 18, the holder of parental authority must also sign the above two documents.
16. Participants must be equipped with a protective helmet, life vest and wet suit compliant with the established standards. They must certify that they are not under the influence of drugs, alcohol or any illicit substance.
17. **Information for Participants.** Before descending the river, participants must be informed of the inherent risks and proper procedures associated with this activity. The information conveyed must cover the following issues:³
 - a. the potential risks associated with swift water and the environmental conditions;
 - b. proper procedures during the descent;
 - c. requisite precautions;
 - d. the purpose of the life vest and protective helmet and the relevant procedures; and
 - e. proper procedures to be followed after capsize and other incidents that may occur while rafting the river.
18. **Preparations.** Before commencing any rafting activity, we recommend that you consult A-CR-CCP-030/PT-001 on safety standards. A general outline of the safety standards include:
 - a. Shoes should be attached to the raft wherever possible.
 - b. All participants must wear life vests IAW A-CR-CCP-030/PT-001.
 - c. Inflatables must be equipped with multiple air chambers.
 - d. Watercraft/rafts should never be overloaded.
 - e. Watercraft/rafts must have fore or aft mooring lines that are at least 8 ft in length.
 - f. Rafts must be equipped with sturdy handholds.
 - g. There shall be a minimum of one guide for every four participants.
 - h. Rescue drills should be planned, and these drills should be practiced.
 - i. Special precautions should be taken when crossing large expanses of water. As a rule, no crossings should be attempted during violent wind storms.
 - j. The party must be equipped with manual illuminating flares.
 - k. No travelling should be done at night or in conditions of reduced visibility on navigable rivers, estuaries or lakes.
 - l. All rafts and watercraft must be equipped with a repair kit (Annex C), an extra paddle and an anchor.
 - m. A first aid kit is indispensable (Annex D).

3 Based on the standards of the CRC.

19. No one should straddle the raft's outside tube while navigating a rapids.
20. From the moment the raft hits the water, practical exercises of key manoeuvres should be conducted.
21. Rafting expeditions must comply with Annex E and comprise at least two watercraft and two guides.
22. All rafting trips must take place during the period between dawn and dusk.
23. When a rafting party encounters conditions that would prevent any participant who fell into the water from re-embarking before being swept into the following rapids, the guide or expedition leader must arrange for the presence of one or more of the following on the scene:⁴
 - a. one or more kayakers;
 - b. one or more guides on the shore with life-lines; and
 - c. persons in motorized boats or in rafts downstream from the danger.
24. **Equipment.** The inflatable craft must meet the following safety standards:
 - a. Be constructed of sturdy materials in good condition.
 - b. Have a minimum of four buoyancy reserves.
 - c. Be equipped with a mooring line, except where there is a possibility of entanglement, and either a rope encircling the raft or straps where lines can be attached.
 - d. Should never be loaded with passengers and equipment whose weight exceeds the manufacturer's recommended load capacity.
 - e. All mobile equipment, storage boxes and other items that pose a risk to passengers should be solidly secured and stowed.
25. A-CR-CCP-030/PT-001 contains a list of appropriate, required and recommended equipment and clothing to be used when engaging in nautical activities. The specific list for this particular activity is provided below:
 - a. **Protective Helmet.** It should be capable of floating, protecting the forehead, the superciliary arches, the temple and the back of the head and should have an effective attachment system. It must be approved by the regional authorities and worn at all times.
 - b. **Life Vest.** It must be worn at all times and meet the standards specified in A-CR-CCP-030/PT-001. Must also be worn on top of all other clothing layers.
 - c. **Wet Suit.** Participants are required to wear a wet suit when the water temperature is 12°C or lower. It must have a total thickness of 8 mm and must be checked and properly adjusted prior to departure. It should be noted that the CRC recommends wearing a wet suit when water temperature falls below 37°C.

4 Based on the standards of the CRC.

- d. **Paddling.** Not every canoe/kayak training facility has the financial ability to purchase and maintain modern aluminum/plastic or graphite composite paddles. If relatively inexpensive wooden paddles must be used, they should be in good condition, and properly varnished. They should also be readily available in large quantities since they are easily broken.
- e. **First Aid Kit.** A waterproof first aid kit of appropriate size and type for the paddling group and the activities expected, it must be readily available during training and tripping.
- f. **Repair Kit.** An appropriate repair kit for the number and types of craft must be taken on trips and should be available during training.
- g. **Outerwear.** Should be warm and wind/water resistant according to weather.
- h. **Shoes.** Must be worn at all times. Soft-sole lightweight running shoes or wet-suit booties with good soles are preferable especially if portages are expected. Sturdy sports sandals with solid buckles are acceptable for flat water paddling activities or when difficult portages are not expected. Loose Velcro attachments tend to let go once wet, and therefore are not acceptable.
- i. **Safety Line.** In kayaks, the line must be in an accessible container (such as throw bag) so that it is not loose in the cockpit of the boat.
- j. **Sound Signal.** A sound signalling device **or** a sound signalling appliance (whistle or air horn).
- k. Some types of clothing are not recommended. We refer you to the chapter on paddling activities.

GOVERNING BODIES

26. Only companies belonging to the following associations are authorized:

- a. **Lower Kananaskis River Users Association**
Mike Mitrovic
Telephone: 403-678-4919
Fax: 403-609-3210
Email: mike@miragetours.com
- b. **Jasper National Parks Professional River Outfitters**
Brian Young
Telephone: 780-852-3777
Email: bkyoung@rmriverguides.com
- c. **Canadian Rivers Council**
Sean Mannion, Director
P.O. Box 212
Bryson, QC J0X 1H0
Telephone: 1-819-819-647-3625
Fax: 1-819-647-6760
Email: rafting@cyberus.ca

- d. **Professional River Outfitters Association of Alberta**
Ruth Goodwin
Telephone: 403-933-5309
Email: alilnr@cadvision.com
- e. **Parks Administration Ministry of Environment Lands and Parks of British Columbia**
Bob Delziel, Director of District Operations
P.O. Box 9398 STNPROVGOVT
800 Johnson Street, 2nd Floor
Victoria, BC V8W 9M9
Telephone: 1-250-356-0585
Fax: 1-250-356-2509
Email: bob.dalziel@gems5.gov.bc.ca

LEVEL OF AUTHORITY

27. All outings require the approval of the region. The D Cdts must approve all expeditions.

TRANSPORTATION REQUIREMENTS

28. Paddling day instruction and tripping usually requires the transport of raft in a trailer. Drivers must ensure the proper electrical and tow equipment are available in the vehicle towing the trailer. Drivers should be experience at driving with a canoe trailer and must also take the responsibility of their load. All watercraft tie-downs (straps) must be double checked by the driver prior to departure.

29. If trailers are left unattended during training or tripping, proper security arrangements must be made to ensure the trailer will not be stolen or tampered with. Special permissions may be required to leave trailers and vehicles overnight.

30. Safety vehicle/evacuation means may be the same vehicle. If no motorized safety boat is used during a paddling trip, then a safety vehicle must be present at a location closely accessible to the trip leader. The safety vehicle must have appropriate communications means to be in contact with both the trip leader and local authorities. A first aid kit should be left in the safety vehicle at all times.

31. In wilderness settings where no land or water safety vehicle is accessible within three hours, proper arrangements must be made for helicopter evacuations through either search and rescue, the CF, parks services, police/fire department or the national coast guard. If this last option is used, proper communications must be established with the evacuation agency. In this case, communications will usually require satellite phone access and a prepared list of the appropriate phone numbers and emergency procedures.

SKILLS AND DEVELOPMENT OF THE CADET

32. It is recommended before undertaking rafting activities that the participants have previously acquired canoeing and paddling skills on a Level II river.

33. Before undertaking an expedition, it is recommended that participants first have the experience of a canoe expedition on a Level I or Level II river.

34. For a better overall view of their progress, refer to Annex F.

QUALIFICATIONS AND ROLE OF PERSONNEL⁵

35. **Excursion Leader.** The excursion leader must:

- a. be qualified as a guide according to standards set within the past two years;
- b. if he or she has less than three years' experience as a guide, he or she must have completed training in white water rescues;
- c. have completed at least two trips as a guide on the river where he or she is to serve as excursion leader;
- d. be capable of repairing a raft;
- e. be familiar with swift water rescue and recovery techniques;
- f. be acquainted with the region's evacuation trails; and
- g. be certified by his or her association. This certification must be renewed every two years.

36. **Guide.** The guide must:

- a. be 18 years of age or older;
- b. have a valid certificate from a first aid course given by the St-John's Ambulance or the equivalent;
- c. have successfully completed, within the two preceding years, a cardiopulmonary resuscitation course offered by the St-John's Ambulance, the Heart and Stroke Foundation of Canada or the Lifesaving Society and have a certificate to that effect;
- d. have completed, under the supervision of an excursion leader, 20 white-water rafting trips within the three preceding years;
- e. be conversant with the construction of a raft; and
- f. have a basic knowledge of the following subjects:
 - (1) safety and emergency measures, hypothermia and the risks associated with different sorts of routes;
 - (2) the dynamics of water, of currents and of the movements associated with the interpretation of rapids; and
 - (3) guides must be certified by their association, and this certification must be renewed every two years (permit).

37. **Kayakers.** Kayakers are assigned to ensure the safety of the participants and must have the following qualifications:

- a. be at least 16 years of age;
- b. possess a valid certificate from a first aid course given by the St-John's Ambulance or the equivalent;
- c. have successfully completed within the two preceding years a cardiopulmonary resuscitation course offered by the St-John's Ambulance, the Heart and Stroke Foundation of Canada or the Lifesaving Society and have a valid certificate to that effect;

⁵ Based on the standards of the CRC.

- d. be familiar with the evacuation trails; and
 - e. If they possess less than three years' experience as a guide, they must have taken swift water training.
38. **Responsibilities.** The guide and expedition leader must:
- a. ensure that participants meet the prerequisites for participants;
 - b. brief participants on the precautions to take when approaching rapids;
 - c. at no time consume or be under the influence of drugs, alcohol or narcotic substances during an excursion;
 - d. wear an individual flotation vest with a minimum buoyancy of 7 kg (15.5 lb);
 - e. from the very start of the excursion, drill participants on the principal manoeuvres;
 - f. before commencing daily operations, inspect and ensure that the facilities and equipment meet established standards;
 - g. scout the route before the excursion when water levels are abnormally high or when the route is new;
 - h. before starting the trip, gauge water levels using natural visual indicators and indicators placed by the organizer along the length of the river;
 - i. cancel the trip or change the section of the river when water levels exceed the standards;
 - j. cancel the trip if the weather conditions are poor or for any other reason that may compromise the safety of the participants;
 - k. refuse admission to any individual who, owing to their particular state of physical or mental health, may be affected by a river excursion and to any person who fails to meet the pre-conditions for participants;
 - l. refuse admission to any person who consumes or is under the influence of drugs or alcohol;
 - m. conduct the pre-excursion information session for participants;
 - n. locate and position rescue personnel; and
 - o. grant or deny permission to participants to go swimming.

■ INSTRUCTOR TO CADET RATIO

39. The ratio is always one guide to every four participants.

MAXIMUM NUMBER OF PARTICIPANTS

40. A minimum of two inflatable watercrafts must be used, not including the safety kayaks. The number of participants per watercraft is defined by the manufacturer.

ENVIRONMENTAL CONSIDERATIONS

41. Waste management for personal hygiene, food scraps, food containers and human waste for paddling trips and training will follow camping skills of "minimum impact" at minimum and "no trace" in optimum conditions. The impact philosophy of camping and outdoor adventure is established in Chapter 1 and in the RCAC References Book.

42. Groups will be limited to the instructor to cadet ratios. The maximum allowable visitor at campsites will limit size of tripping groups. Special considerations must be given to environmentally sensitive areas, minimal impact must be imposed onto any given environment. It is better to separate large groups into smaller units and space-out the departure of each smaller group so that no large, intrusive group of paddlers block-up section of rivers and shore line. Campsites (established or wilderness) should not have to support more than 15 visitors.

WEATHER CONSIDERATIONS

43. Know the weather forecast.

44. It is permissible to paddle in the rain and fog but if it interferes with reasonable visibility or strong winds accompany the rain then it will be necessary for all craft to return to shore, as soon as it is safe to do so. Paddling distance between craft should be diminished during periods of poor visibility, be aware that precipitation may affect water levels and rapid classifications.

45. There shall be no paddling training or tripping while lightning is present, all crafts are to pull over to the closest shore as soon as it is safe to do so.

46. Although extremely cold or hot temperatures do not interfere directly with paddling, training and tripping must be adapted accordingly, paddling gloves and pogies may be necessary. Special consideration should be given to appropriate clothing such as wet and dry suits, and PFD.

DURATION OF THE ACTIVITY

47. The activity must be conducted between dawn and dusk. For expeditions, refer to the parameters at Annex E.

LIMITATIONS

48. The number of places in the watercraft specified by the manufacturer must not be exceeded.

49. The river's characteristics, notably, its width, plants and animals, may be factors for limiting the number of watercraft on the river.

CONDITIONS FOR HALTING THE ACTIVITY

50. The expedition leader has authority to cancel or halt the activity based on river levels, weather conditions and visibility.

LOGBOOK

51. Participants of a rafting activities are encouraged to keep a logbook of their experiences.

DEBRIEF

52. Both cadets and staff should be debriefed after rafting activity. Often, participants will feel a certain amount of accomplishment or they may require more input.

ANNEX A
PREREQUISITES FOR PARTICIPATION¹

¹ Based on the standards of the CRC.

Section 1 – Agreement Between the Participant and the Outfitter		
Name	First Name	Health Insurance No.
Address (Street and No.)	Apartment	Telephone No.
City	Province	
Name of Outfitter		
Address (Street and No.)	Apartment	Telephone No.
City	Province	

Section 2 – Participant Statement	
Please read carefully and initial each paragraph.	Initials
The outfitter has explained, illustrated and demonstrated to me to my satisfaction the nature, risks and dangers of this activity and I accept these risks.	
I am aware that the activity in which I plan to participate is dangerous and may result in the loss of limbs, injury, trauma and death.	
I am particularly aware that while navigating rapids I may be thrown from the boat and fall in the water at any point in the river.	
I hereby state that I intend to participate in these activities at my own risk and that I specifically absolve the outfitter of any responsibility with regard to the losses and material damage that may result from these activities.	
I pledge to follow all the directives and instructions issued by the outfitter, his or her guides, monitors or other officials.	

Section 3 – Consent	
I declare that I understand all of the clauses in this agreement.	
Signature _____	Date _____ Year _____
Outfitter's Signature _____	Date _____ Year _____
Name of Parent or Tutor _____ Signature of Parent or Tutor _____	
(Required for participants below 18 years of age)	

Figure 10A-1 Prerequisites for Participation Form

ANNEX B
MEDICAL QUESTIONNAIRE¹

¹ Based on the standards of the CRC.

Section A – Medical Condition		
Yes	No	
		1. Has your doctor ever told you that you have a heart problem and that you should only take part in physical activities prescribed and approved by a medical doctor?
		2. Do you ever experience chest pain while engaging in physical activity?
		3. In the past month, have you ever experienced chest pain at times when not engaging in a physical activity?
		4. Do you ever experience balance problems associated with dizziness or have you ever lost consciousness?
		5. Do you have bone or joint problems that may be aggravated by a change in your level of participation in a physical activity?
		6. Are you currently being prescribed medication to control your blood pressure or a heart problem (e.g. diuretics)?
		7. Are you aware of any other reasons why you should not engage in physical activity?

Section B – Are You Suffering From or Have You Ever Suffered From		
Yes	No	
		Epilepsy
		Hemophilia
		Psychiatric problems
		Serious allergies (e.g. nuts, peanuts, stinging insects, hypersensitivity to cold)
		Asthma
		Diabetes
		Are you pregnant?
		Have you undergone surgery during the past 10 months?

Section C – Participant Statement	
Please read carefully and initial each paragraph.	Initials
I declare that I weigh more than 41 kg (90 lb).	
I declare that I am a satisfactory swimmer.	
I hereby declare that I am not under the influence of alcohol or any drug, and I formally pledge to refrain from using drugs or alcohol during the excursion.	
I hereby declare that I have read, understood and agreed to the provisions in this document and that all the information contained herein is true.	
Signature _____ Date _____ Year _____	
Name of parent or tutor _____ Signature of parent or tutor _____ (Required for participant under 18 years of age)	

Note: If you answered “Yes” to one of the questions in Section A, you must obtain written medical authorization in order to participate in the excursion. If you answered “Yes” to one of the questions in Section B, you must meet with the excursion leader before undertaking the excursion.

Figure 10B-1 Medical Questionnaire

ANNEX C

REPAIR KIT¹

1. Each raft must have on board a repair kit containing:
 - a. sufficient material to repair a 1.5-m tear in the bottom of the raft;
 - b. sufficient glue for this same operation;
 - c. sandpaper or a tool to roughen the surface;
 - d. duct tape;
 - e. at least one replacement valve;
 - f. a multi-purpose screwdriver;
 - g. pliers or vise-grips; and
 - h. a booster pump.

¹ Based on the standards of the CRC.

ANNEX D
FIRST AID KIT¹

1. The minimum contents of a first aid kit are listed below:
 - a. a first aid manual approved by a recognized organization in the field of first aid;
 - b. the following instruments:
 - (1) one pair of bandage scissors;
 - (2) one forceps – splinter type;
 - (3) 12 safety pins (assorted sizes);
 - (4) two splints; and
 - (5) one respirator with valve;
 - c. the following dressings (or the equivalent sizes):
 - (1) 25 separately wrapped sterile adhesive bandages (25 mm x 75 mm);
 - (2) 25 separately wrapped sterile gauze compresses (101.6 mm x 101.6 mm);
 - (3) four separately wrapped rolls of sterile gauze bandages (50 mm x 9 m);
 - (4) four separately wrapped rolls of sterile gauze bandages (101.6 mm x 9 m);
 - (5) six triangular bandages;
 - (6) two rolls of 75 mm wide elastic bandages;
 - (7) four separately wrapped sterile compressive bandages (101.6 mm x 101.6 mm);
 - (8) a roll of adhesive plaster (25 mm x 9 m); and
 - (9) two rolls of 50-g cotton batting;
 - d. antiseptic: 25 separately wrapped antiseptic pads;
 - e. sugar (dextrose monobject); and
 - f. the following equipment:
 - (1) one blanket of wool or a moisture-proof insulating material;
 - (2) one water-proof lighter or matches; and
 - (3) two pairs of latex gloves.

¹ Based on the standards of the CRC.

ANNEX E

PROVISIONS GOVERNING AN EXPEDITION¹

DEFINITION

1. An expedition is defined as an excursion of several days in an area where the downstream distance from the point of departure to the nearest passable road, inhabited town or radio outpost exceeds 100 km.

STANDARDS

2. Each raft must be equipped with a first aid kit, as indicated at Annex D.
3. Each raft must be equipped with a repair kit as indicated at Annex C.
4. All participants must be apprised of the isolation and potential difficulties in obtaining medical care; consequently, it is not recommended that persons suffering health problems undertake major expeditions. The notice should contain a strong recommendation that participants undergo medical exams prior to departure.
5. In addition to the appropriate provisions for the expedition, all watercraft must carry emergency reserves, survival gear and illuminating flares.
6. In addition to the requirements outlined in this chapter, guides and expedition leaders must:
 - a. be capable of using a map and compass to gauge their position and find their way to nearest the outpost of civilization;
 - b. have an intimate knowledge of the geography and dangers of the region;
 - c. be physically fit; and
 - d. be thoroughly acquainted with other modes of land or water transportation that might prove useful in emergency situations.

¹ Based on the standards of the CRC.

ANNEX F
RAFTING PROGRESSION MATRIX

Age	Star Level	Intensity of the Activity	Delivery Method	Progression of the Activity	Class	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	OIC Agency	Technical Instruction/Leadership	Authority
12-14	Green to Gold (Notes 1 and 2)	Fam	Day Trip	MW	Class 1-2	1 to 6	None	Min of 2 Raft	1:4	LHQ/Zone	Contract With Trade	Region
13-15	Red to Gold (Notes 1 and 2)	Basic	Day Trip	MW	Class 1-2	1 to 6	None	Min of 2 Raft	1:4	LHQ/Zone	Contract With Trade	Region
14-16	Silver to Gold (Notes 1 and 2)	Intermediate	Day Trip	MW	Class 3 and More	1 to 9	Bronze	Min of 2 Raft	1:4	LHQ/Zone	Contract With Trade	Region
17-18	Gold to MC	Advance	Expedition	MW	Class 3 and More	1 to 9	Silver	Min of 2 Raft	1:4	Zone/Region/National	Contract With Trade	National

NOTES

1. Gold Star level in this chart includes NSCE and MC unless those levels are identified separately.
2. There is to be no overnight camping gear carried in raft.

Progression

1. Class 1-2 canoe day trip must be done before raft activity.
2. Class 1-2 canoe expedition and raft day trip must be done before raft expedition.

Safety skills

1. Swim with PFD – calm response to direction
2. On-water communication
3. River comms
4. MW swimming – calm response to direction
5. MW self-rescue
6. MW line toss and rescue
7. MW IAs on wet exit – retrieve a swamped raft
8. MW rolling capability 4/5 each side
9. MW raft rescue (conscious victim)

Figure 10F-1 Rafting Progression Matrix

ANNEX G

REFERENCES

Règlement de sécurité du conseil des rivières canadiennes – Rafting, CCR, février 1998.

River Rafting Guide Certification Manual, Registrar of Commercial River Rafting of British Columbia, Ministry of Environment, Lands and Parks, 2001.

CHAPTER 11

ROPES AND CHALLENGE COURSE

DESCRIPTION OF ACTIVITY

1. A ropes and challenge course is any series of supervised individual and group activities that utilize spotted or non-spotted elements/apparatus that have been designed or installed as part of an experiential learning curriculum. Ropes challenge courses can be used for recreational, educational and developmental purposes and are generally designed to foster team-building, group cohesion, cooperation, leadership, problem-solving skills, communication skills, healthy risk-taking and individual commitment.
2. Ropes challenge course programs are experience-based tools through which the power of a group to assist individuals to actualize their potential on all levels may be achieved. This experiential model is effective because it engages individuals in an active, dynamic learning process that allows for immediate feedback and opportunity for change, as opposed to traditional didactic (lecture) models that are passive and rarely maximize the learning curve.
3. Although they may be traced back as far as 1875, rope challenge courses are now constructed of more wood and cable than rope. Challenge courses can be built in either an urban setting (gymnasium, sports field) or in a more natural setting (wooded area). Elements can be built into either treated poles or trees, and different activities can be built at heights varying from 20 cm to 20 m or more above the ground.
4. Ropes and challenge courses can consist of rope bridging, obstacle courses, and group leadership activities.
5. Obstacle courses consist of ground level or low bridge activities grouped together to provide a series of activities for participants to cross.
6. Group leadership activities are those that members of a group must complete as a team.
7. Ropes and challenge courses are divided into two categories:
 - a. **Low Ropes Course (Including Rope Bridging).** A low ropes course consists of challenging elements that are built **less than 1.5 m off of the ground** and as such do not involve the use of safety ropes (belays). The safety system used in low element activities is group spotting; which is defined as one or more persons working together to catch, lift and/or physically support a participant without the aid of any specialized equipment. These elements are generally a series of problem-solving experiences that physically engage teams to develop and execute a plan. The challenges, though low to the ground, are more difficult than they appear. Each challenge is designed to draw on every team member's contributions – their ideas, their support, and their efforts. Low ropes courses are generally structured so that the activities gradually increase in level of difficulty so that the team continually extends its aspirations and its reach. The following is a brief list of examples of low elements:

NOTE

This list is not intended to limit low ropes course elements to those shown here, but merely to provide a frame of reference for understanding what a "low" element is.

- (1) **Swinging Log.** Individual participants walk across a moving suspended log using peer support if required.
- (2) **Logjam.** Small group of participants progress from one end of the "jam" to the other by manoeuvring the suspended logs on the cable.
- (3) **Track Walk.** Individual participants walk atop a series of stationary beams arranged at varied heights and angles.

- (4) **Criss Cross.** Two participants start walking at opposite ends of two cables (suspended not more than 50 cm above the ground), which are crossed in the middle, they traverse the cable and negotiate the crossing at the centre before continuing to the end.
 - (5) **Triangle Tension Traverse.** Participants traverse along a triangular cable formation (suspended not more than 1 m above the ground) with the aid of a central, stationary length of rope.
 - (6) **Wild Woozy.** Two participants must depend on each other to traverse as far as possible along two progressively widening cables (suspended not more than 1 m above the ground).
 - (7) **Trust Fall.** Individual participants fall backwards from a platform (elevated not more than 1.5 m above the ground) into the arms of the group.
 - (8) **Hickory Jump.** Individual participants jump from the top of a pole (not more than 1.5 m above the ground) and catch a trapeze while the group spots the participant.
- b. **High Ropes Course (Including Rope Bridging).** High ropes course elements vary from balance beams to cable crossings to complex climbing structures that are built **higher than 1.5 m off of the ground**; generally 10 to 20 m. Safety systems for these elements are belay ropes. Most of these elements have a direct relation to climbing skills, as they teach balance, coordination, and concentration. They are the finest of all at teaching participants self-confidence and the understanding of perceived risk. The following is a brief list of examples of high elements:

NOTE

This list is not intended to limit high ropes course elements to those shown here, but merely to provide a frame of reference for understanding what a “high” element is.

- (1) **Incline Log.** Individual participants begin at the low end and traverse the length and back of an inclined log.
- (2) **Two-strand Bridge.** Individual participants traverse the length of a suspended cable with the aid of a second, higher suspended cable.
- (3) **Three-strand Bridge.** Also known as the Burma bridge, individual participants traverse the length of a suspended cable with the aid of two higher, laterally positioned cables (one for each hand).
- (4) **High Balance Beam.** Individual participants traverse an elevated balance beam/log.
- (5) **Kitten Crawl.** Individual participants traverse two parallel cables in any possible way they devise.
- (6) **High Wild Woozy.** Two participants must depend on each other to traverse as far as possible along two progressively widening suspended cables.
- (7) **Multi-Vine.** Individual participants traverse the length of a suspended foot cable with the aid of short lengths of rope dangling at varying intervals along the way.
- (8) **Heebee Geebee.** Two vertical, crossed cables are attached to the middle of a third horizontal cable. Individual participants traverse the length of the suspended, horizontal cable with the aid of the two vertical, crossed cables.
- (9) **Team Beams.** Two participants start to traverse at opposite ends of two suspended poles which are secured in an elongated “X” formation, eventually crossing paths in route to the opposite end of the “X” from which they started.
- (10) **Zip Wire.** Individual participants slide down the long length of a single suspended cable with the use of a pulley attached to their harness.
- (11) **Power Pole.** Individual participants climb a tall pole, stand on top, and then leap out to grab a suspended trapeze bar.

8. You will find an activity list description at Annex A.

AIM OF ACTIVITY

9. The purpose of ropes challenge courses in CCM is to include a progression of elements, each one building on the skills learned from the last. Each element is modified and adapted to the needs of the group so that each challenge can be learned within an optimal setting. Skills learned include communication, decision-making, planning, trust, risk taking, expressing feelings and more. Each individual participant also benefits in the areas of improved social skills, more independence and self-reliance as well as higher self-esteem.

CANADIAN REGULATIONS

10. There are no Canadian regulations or regulatory bodies at this time. However, the most established, current and widely accepted organization in this respect worldwide is the Association for Challenge Course Technology (ACCT). ACCT is a professional trade association whose mission is to establish and guide the implementation and compliance of standards of quality and safety for the installation, operational programming and instruction as well as ethical practices within the industry.

MILITARY REGULATIONS

11. Civilians may be employed as instructors but must be suitably experienced and qualified in the type of training being undertaken a qualified instructor must directly supervise all ropes and challenge course activities.

CCO SAFETY REGULATIONS

12. Cadets at any level of training under normal supervision may participate in rope and challenge courses as a mandatory support or optional subject at the cadet corps and as a mandatory support/directed optional subject on selected summer courses. Instructors may be CIC officers, members of the Regular or Reserve Force but must be suitably experienced and qualified in the type of training being undertaken. A qualified instructor must directly supervise all challenge course activities.

13. Cadets must be properly briefed before participating in challenge course activities. Although not limited to, a site briefing could include:

- a. Welcoming participants to the site and explaining the activities they will be undertaking.
- b. Informing participants of the boundaries at the site and "helmet on and helmet off" areas.
- c. Informing participants of the designated area that they will wait in while not participating in the activity.
- d. Showing and explaining how to wear harnesses including making sure they are above the hips and "doubled back" if need be.
- e. Showing and explaining how their safety tethers work making sure to mention that they must be hooked into a safety cable at all times while participating in the activity.
- f. Showing and explaining "DOWN, LOCKED, and OPPOSED" with the carabineers, and that participants must communicate to the instructor for verification before proceeding on any bridge.
- g. Explaining the system of removal from the course or "ZIP LINE", if one is present.
- h. Asking if participants have pertinent medical history that the instructor should be aware of.
- i. Allowing the opportunity for participants to report information about possible safety hazards.
- j. Conducting a complete site demonstration of all activities that participants will be expected to partake in.

14. Cadets will also be inspected and quizzed on pertinent site information before they are allowed to proceed onto a ropes and challenge course.

15. From Annexes B to E, you will find all safety regulations.

GOVERNING BODIES

16. There is no national organization regulating rope challenge courses. There are however, many associations, which retail rope challenge course designs, equipment, inspections, training, etc. Of these and as mentioned at paragraph 10., the most widely recognized and accredited is ACCT.

- a. Association for Challenge Course Technology
P.O. Box 255
Martin, MI
49070-0255 USA
Telephone: 616-685-0670
Fax: 616-685-6350
Email: acct@net-link.net
Cost: \$45 (USD) per year
- b. Association for Experiential Education (AEE).
- c. American National Standards Institute.
- d. UIAA.

EQUIPMENT REQUIREMENTS

17. At Annexes B, C and D, you will find all the details about standards and safety equipment.

18. The following is a list of personal safety equipment and the recommended minimum standards for each as published by ACCT:

- a. **Belay Rope.** Must have a manufacturer's rated breaking strength of at least 22.22 kN (5000 lb) when new and must be UIAA/CE approved.
- b. **Pulleys.** Must have a breaking strength of at least 22.22 kN (5000 lb).
- c. **Carabineers and Rapid Links.** Must have a breaking strength of at least 22.22 kN (5000 lb) and a locking gate. On traversing elements, steel carabiners or Rapid links are required when direct contact is made on wire rope.
- d. **Belay Devices.** Must be used in accordance with manufacturer's recommendations.
- e. **Harnesses.** Tied seat harnesses (Swiss seat, Algonquin harness) or commercial seat or full-body harnesses are required on all belayed elements. Commercial harnesses must be used in accordance with the manufacturer's recommendations.
- f. **Helmets.** Must be UIAA/CE approved.
- g. **Personal Fall Arrest Systems.** Shall limit the maximum arresting force on the person to 4.0 kN (900 lb) when used with a seat harness and the limit the free fall distance to no more than 183 cm (6 pi).

19. Safety equipment for the group:
 - a. first aid kit complete with enough supplies for the number of members in the party and the type of activity;
 - b. stretcher/litter/backboard; and
 - c. access to one method of communicating with the outside for help.

20. The following is recommended additional equipment;
 - a. comfortable, loose fitting clothes; approved CF combat dress;
 - b. closed toe shoes, hiking boots, CF combat dress boots; and
 - c. appropriate environmental clothing articles.

RATION REQUIREMENTS

21. Rations may be required for participants at the site if training will take place over a meal. Water should be available for all persons at the site.

22. The nature of rope and challenge course activity does not imply limits to the type of rations that may be consumed. IMPs, box lunches and fresh-rations are suitable for these types of activities. However, most commercial vendors of rope and challenge courses are equipped to provide the necessary meals on-site.

23. Ropes and challenge courses are associated with higher levels of personal stress and concentration. Accordingly, in order to function properly, high-energy foods are required. It is advised to allocate either 1.5 times the amount of food normally required or to supplement the regular amount of food with various high energy products (dried-fruits, cereal bars, chocolate bars, etc.).

TRANSPORTATION REQUIREMENTS

24. Access to and from training area must be permitted freely.

25. A designated and dedicated safety vehicle must be present at the nearest vehicle access point at all times while ropes challenge course training is being conducted and must be ready in the event that a participant needs to be evacuated. A qualified driver will be ready and will be in possession of a minimum of St. John's Ambulance Standard First Aid (or the equivalent) with CPR. The vehicle must be capable of carrying a spine board in the event of an emergency evacuation.

CADET SKILL LEVEL

26. The two skill levels that must be assessed before allowing a participant to take part in challenge course activities are their mental and physical levels. A participant must be aware that they are undertaking an activity they may not normally participate in and that it does pose a mental challenge. Cadets who are deemed unable to meet this requirement will not be allowed to participate in the activity for their own safety.

27. Cadets need to be properly briefed on the code of conduct expected by the ropes Challenge Course Facilitator (CCF) or vendor during the activities prior to the commencement of any activity.

28. To foster the establishment of trust and self-confidence required to maximize his or her experience on the ropes challenge course elements, cadets and staff need to understand the proper handling and function of their equipment and the safety procedures in place while on and around the rope and challenge course. To this end,

the CCF and his or her staff must work to familiarize each participant with the equipment and safety procedures involved. Finally, the CCF will conduct a complete equipment check prior to the initiation of any rope challenge course activity.

29. Although many ropes and challenge course vendors and facilitators regularly introduce high ropes course elements without prior experience on low ropes course elements, this practice is not recommended. During a low ropes course, the focus is on the team. Common practice within ropes challenge course operation is to not provide demonstrations or any other indications of how to approach each element; consequently team development and leadership concepts are learned through personal and group discovery while completing the series of action based learning activities. Activities draw on the knowledge and ideas of every group member and require the participation and cooperation of the entire team for success. After completing each element, staff or CCF personnel should assist each group to reflect upon their experience to explore how they functioned as a team and ways to become more effective prior to moving to the next low course element. This practice of gradual progression in challenge course elements will provide optimum learning as well as facilitate the building of the trust, confidence and communication skills necessary for effective management of high ropes course elements.

30. **Rope Bridging.** With regards to rope bridging, a question that would have to be asked by the instructor to themselves would be “can I trust that this cadet will remain attached to a safety cable at all times?” Cadets under duress may proceed on a bridge without permission or without being attached to a safety cable.

31. Some rope bridges may be easier to cross than others; all participants should construct bridges to allow for maximum participation. Factors to be considered would be the number of bridges that would have to be crossed and their difficulty through either design or incline.

32. Participants will usually only need a short amount of time for introduction to rope bridging. A cadet who can walk and open and close a carabineer should be able to participate in rope bridging.

33. If cadets are going to participate in the actual construction of rope bridging, it is imperative that it be stressed that they should not build unless under the supervision of a qualified/competent instructor. An instructor should verify that cadets have properly built a rope bridge before human life is suspended by it. The construction of rope bridges is something that could be included in adventure training activities, as they can require a minimum of equipment for safe set-up. Thus, this activity would easily go hand in hand with other adventure training activities such as on a canoe or hiking expedition.

34. **High Rope Course.** High ropes courses are designed to provide opportunities for teamwork further than those offered by low ropes courses. High ropes courses do this with the added emphasis on individual challenge while still maintaining the cohesiveness of the team previously established during the low ropes course. The high elements provide opportunities for participants to expand their comfort zones and to overcome fears that can block personal as well as group development. Due to their nature, high ropes challenge course elements should be reserved for cadets that have demonstrated the appropriate attitude and skills on low ropes elements.

35. **Progression Level.** A Progression matrix can be found as Annex E to assist instructors as a quick reference for ease of determining the best activities to choose for the participants to complete.

PHYSICAL FITNESS

36. A ropes and challenge course **is not an assault course**, effective participation does not rely upon fitness and/or physical strength. A professionally designed and constructed ropes course can accommodate people of all ages, as well as those with special needs.

37. It is also rare for success on a ropes course to be measured in terms of how fast it was completed. The nature of ropes challenge course elements is to break down stereotypes among peer groups and promote an individual sense of competence and self-confidence.

38. Physical fitness is a very important characteristic in challenge courses. If an instructor allows cadets who may not be capable of finishing the course to participate, safety issues may occur. The first is that of removing a participant from the course. A “what if” question should be asked by the instructor to themselves to determine, “what if a cadet would not advance on at any part of the course.” The instructor must make sure that a safe plan is in place to account for this possibility. In rope bridging, an easy method for this possibility is to set up a pulley system for each bridge. It is important to note that although pulleys are designed to hold a significant amount of weight, they are not approved to do so. Participants must remain attached to the safety cable at all times.

39. For beginning cadets or those of lower physical fitness, bridges should be kept to a minimum in number and complexity and not involve any inclines.

40. For cadets with a higher level of physical fitness, additional bridges, higher complexity in design, and possibly an incline could be included. Rope bridges with inclines are more dangerous than rope bridges without them. If a participant falls from a bridge that does not have an incline, they will only fall straight down. If a cadet falls from an incline, when the tethers take up slack, their body weight has the potential of forcing the participant to slide down on the safety cable. As such, inclines should not be used for complex bridges such as a one-rope bridge.

QUALIFICATIONS, EXPERIENCE AND FITNESS OF LEADERS AND OPI

41. **SME.** As mentioned previously there is no recognized national organization certifying/qualifying instructors to install and manage ropes challenge courses. However, refer to paragraph 16. for identified bodies of best practice.

42. **Low Rope and Challenge Course.** For the **specific** case of low rope and challenge course (including rope bridging) and under the approval of the RCSU COs, only the instructors considered competent can build, supervise and manage low rope and challenge course activities. By competent, we are referring to an instructor able to demonstrate:

- a. a recent knowledge and experience of current low rope and challenge course installation practices as related to participant safety;
- b. mastery of all necessary knots for low rope and challenge course installation;
- c. the knowledge and ability to properly use all appropriate equipment related to low rope and challenge course (ropes, harness, carabiners, etc.);
- d. the ability to conduct activities using sound judgment, working within their individual level of competency;
- e. the ability to continually assess changes in the environment which may directly affect participant safety (i.e. weather, hazards);
- f. the ability to assess the condition of the environment/equipment/element safety prior to participant use;
- g. the ability to teach, implement, supervise and assess properly various techniques to protect the participants;
- h. an incorporated communication system between spotter(s) and participant(s) that is clear and consistent;
- i. knowledge and ability to belay and assess the appropriateness of various belay techniques related to the activity;
- j. the ability to manage participant behaviour to minimize risk;

- k. knowledge of site-specific emergency action plan and rescue procedures related to the activity; and
- l. an awareness of the impact that low rope and challenge course activities may have on the hydration, nutritional needs and fatigue level of participants.

43. **High Rope and Challenge Course.** Only SMEs in possession of **valid** military (i.e. engineer, pioneer) qualification and/or approved equivalent civilian qualification (i.e. ACCT) can build, supervise, and conduct **high** ropes courses (including rope bridging).

44. Regardless of the origin of the qualification/accreditation/certification (refer to paragraph 16.), rope challenge course SMEs must understand, assume and be formally trained to manage the following:

- a. decisions consistent with program safety and operational practices;
- b. the conduct of activities using sound judgment, working within their individual level of competency;
- c. current rope challenge course installation practices as related to participant safety;
- d. continual assessment of changes in the environment which may directly affect participant safety (i.e. weather, hazards);
- e. activity selection in an appropriate sequence and conduct programs based on assessment of specific group/individual need, readiness, abilities, emotional states and developmental needs and goals;
- f. determining whether spotting or belaying is required to safely manage each activity (in association with the policies and procedures of the ropes challenge course vendor);
- g. the ability to assess the condition of the environment/equipment/element safety prior to participant use;
- h. instruction, implementation and assessment of the various appropriate techniques of spotting in order to protect participants;
- i. a communication system between spotter(s) and participant(s) that is clear and consistent;
- j. belaying and assessing the appropriateness of various belay techniques on an activity-specific basis;
- k. teaching, implementing, supervising and assessing secured belaying techniques in programs that use participant belayers in a manner that ensures all belayers maintain proper control of the belay rope at all times during the belay;
- l. participant behaviour to minimize risk;
- m. site-specific emergency action planning and rescue procedures for all elements and that appropriate rescues can be conducted in a timely manner;
- n. appropriate participant attire; and
- o. hydration, nutritional needs and fatigue level of participants.

45. **General.** Instructors must be mentally prepared to both construct and operate a rope bridge site. Instructors must be proficient in knot tying, the application of safety cables, abseiling techniques, the application of harnesses, and tightening procedures for ropes and safety cables. The higher a rope bridge site is, the more complex it is to run and operate. Construction of a rope bridge that is high, involves ascending a ladder while carrying equipment that may be heavy.

46. An instructor must also be willing to accept the responsibility for the lives of cadets who could be 40 feet in the air and away from the instructor. If the instructor is not confident in their ability to either set up or operate a site, they shall not do so.

47. Instructors must be adaptable to the changes that occur in the construction and operation of a ropes bridge/course. They must be willing and motivated to work with a variety of unique participants and have the ability to coach them to the successful accomplishment of the course.

48. **Medical/First Aid Qualifications (Ratios of Qualified Personnel).** At least one person must be standard first aid qualified for low ropes course element training activities (including rope bridge under 1.5 m). At least one person, other than the SME/activity leader must be standard first aid qualified for high ropes course element training activities (including rope bridge above 1.5 m).

49. **Overall Experience – Command.** The OPI must be military personnel with command experience to at least a Platoon Commander; this is a requirement even if a civilian SME is acting as rope bridge and/or CCF or activity leader. The OPI must be familiar with general safety rules and protocols in training cadets; have demonstrated calm leadership skills and able to recognize dangerous factors.

REQUIRED PREPARATORY WORK

50. The OPI should obtain a copy of the ropes challenge course vendor's insurance and liability coverage policy. A copy of this shall be forwarded with any requests for approval to higher authorities requesting authorization for the activity.

51. Due primarily to the versatile nature of ropes and challenge course training, at least the OPI must have prior knowledge of the facilities and elements offered by the ropes challenge course vendor. In addition, clear communication of program goals and specific objectives should be outlined by the OPI for the ropes challenge course vendor and/or CCF.

52. Emergency and evacuation plans will pre-exist for each ropes and challenge course training site, confirmation and details of this plan, and how the OPI and his or her staff are incorporated into this plan, must be received by the OPI prior to the commencement of any challenge course activity.

53. A sample emergency/evacuation plan is located at Annex F. It is important to keep in mind that it is only a reference and an instructors' emergency/evacuation plan is not limited to the example as theirs will be site and situation specific.

54. The instructor must also plan the procedure they will follow in the event that a participant needs to be assisted or rescued while participating. Someone must be in a harness and helmet, ready to go onto the course to accomplish this.

55. **Recces.** At the time of the recce, the OPI should also obtain a copy of the rope and challenge courses most recent safety inspection report and/or the following critical items of information (a copy of this shall be forwarded with any requests for approval to higher authorities when requesting authorization for the activity):

- a. date which the safety inspection was performed;
- b. inspection company and inspector's name;
- c. previous safety inspection information;

d. listing of all elements and activities inspected, including but not limited to:

- (1) belay ropes;
- (2) life support lanyards;
- (3) harnesses;
- (4) helmets;
- (5) carabineers and rapid links;
- (6) belay devices;
- (7) pulleys and shear reduction devices;
- (8) element access ladders; and
- (9) the condition of each element at the time of the inspection.

56. **Necessary Planning.** Prior to the set-up of challenge courses, the instructor will inspect the site. The following requirements must be met:

- a. Bridge selection will be site specific and designed to ensure maximum participation for cadets based on their mental and physical limitations.
- b. Areas around the site should be free of hazardous brush, limbs, roots, stumps, and poisonous plants.
- c. Only rope bridge sites approved by the RCO will be used, and they should be verified with an arborist or engineer to ensure that the anchors will be capable of supporting the bridge and cables and the suspension of human life.
- d. Trees must be alive and capable of safely holding the weight of the course and participants.
- e. If trees are not used, the anchor will be inspected to ensure the capability of safely holding the weight of the course and participants.
- f. If platforms are erected in trees, they must be secure and in good repair.
- g. Hessian, to protect the structure or trees from wear due to friction and contact with both the safety cable and ropes will be in good condition.
- h. Appropriate boundaries and signage areas will be determined.

57. Inspection prior to use should be conducted by a qualified instructor in rope bridging for the integrity of all hardware, materials, equipment, and condition of the environment in the vicinity. You will find the list at Annex G.

58. The following must be completed **before** construction and operation take place:

- a. The appropriate authority approved both the site and instructor.
- b. The appropriate authority has been granted.

- c. A certificate of approval has been obtained and recognized by the appropriate authority from an arborist or engineer that deems the site safe for a ropes course.
 - d. An environmental assessment has been completed.
59. A communications plan has been established to contact including, but not limited to:
- a. military police or local authorities;
 - b. hospitals – emergency service;
 - c. ambulance;
 - d. air emergency;
 - e. search and rescue;
 - f. participants' emergency contact numbers;
 - g. first aid attendant; and
 - h. safety/emergency vehicle driver.

INSTRUCTOR TO CADET RATIOS

60. Most reputable ropes challenge course vendors provide the appropriate ratios of qualified instructors to participants. However, the following are minimum ratios:
- a. low ropes course: one instructor for every 15 cadets; and
 - b. high ropes course: one instructor for every six cadets.

COURSES SAFETY PRECAUTIONS

61. The maximum participants in obstacle courses is one cadet per activity with at least one person “spotting” at each activity. An instructor must supervise all activities taking place. Due to possibility of activities taking different times to complete and the physical and mental levels of participants not being equal, the course should be operated ensuring that cadets will not be in a position to catch up to or pass other participants.
62. The maximum participants in a rope bridging activity should be one cadet per bridge. An instructor should run a site having less than one cadet per bridge if they feel safety may be an issue.
63. While the maximum participant is one per bridge, there may be times that an instructor or assistant may need to assist or rescue a participant. Instructors and assistants will be permitted to assist and rescue so long as it is conducted in a safe manner.
64. One instructor should be able to supervise a rope bridge site by himself as long as they can see all participants and maintain communication with all participants. Additional instructors are recommended for the rapid and appropriate response to emergencies can take place.
65. If there are additional factors, such as complex bridges or increased difficulties, CIC, Regular and Reserve Force CF members and senior cadets could be employed as an additional resource. Their duties may involve assisting participants with their harness or physically moving the participants' safety tether from one safety cable to another.

66. Although there is the potential for danger when conducting this type of training, preventative measures can be taken to minimize the potential for accidents. In order to ensure the effectiveness of training as well as the safety of those on the site, careful consideration must be taken with regards to safety. There must be proper pre-instruction for staff at a rope bridging site and the following items be inspected prior to every use:

- a. anchors will be inspected;
- b. knots will be inspected;
- c. bridges and safety cables will be tightened;
- d. site safety equipment will be inspected;
- e. the instructor will be present at the site for the duration of all activities;
- f. carabineers will be individually inspected for rust or other defects;
- g. ropes will be inspected for damage;
- h. helmets will be checked for cracks or other defects;
- i. harnesses will be inspected including belts and buckles for fraying or other defects;
- j. safety tethers will be tied and inspected; and
- k. Swiss seats and chest harness are cut to length.

ENVIRONMENTAL CONSIDERATIONS

67. Ropes challenge course vendors will have policies and practices that address the impact on the physical environment as related to the safety of the participants (i.e. appropriate tree care, proper ground cover, structural pruning, dead limbing, etc.).

68. A concern for the environment must be foremost in all activities. The use of poles or man-made structures can eliminate some environmental concerns. If trees are used as anchors, they must be wrapped in Hessian to avoid friction on the tree's bark.

69. An environmental study by an arborist should be conducted to ensure strength and reliability and to ensure minimal damage will be done to the trees. Hessian must be taken down at the end of usage, allow the tree to mend itself during the non-usage period.

TIME OF DAY/YEAR REGULATIONS

70. Ropes and challenge course activity could conceivably be partaken at any time of day and at any time of the year. Safety could be a concern at night if the instructor was unable to properly observe all activities at the challenge course.

■ DURATION OF THE ACTIVITY

71. The physical and mental capacities of the participants would be the determining factor for duration. Time permitting, if a smaller number of bridges are used, participants should be given a chance to run through the course additional times. This will ensure maximum participation, as an instructor will not have to worry about having cadets unable to complete the course.

WEATHER CONSIDERATIONS

72. Ropes and challenge course activities are designed to offer each participant an opportunity to test mental and physical limits against perceived risks in a safe atmosphere. Consequently, different times of year and seasons can provide completely different tests, contributing new stresses and considerations to a participant's limits.

73. This is a very site-specific factor. Obstacle courses may be used at any time of year providing the instructor has taken all precautions with regards to safety.

74. An easy bridge could be crossed in rain or snow. Cables and rope will still support human life in either weather condition. Ropes do get slippery when they are exposed to precipitation. Rain can also play an important part in maintaining of equipment used at the site. Carabineers would have to be dried and oiled if exposed to rain. With snow, cadets may become cold, and a safety issue could arise on their ability to open and close carabineers. Another safety issue arises as cadets may have difficulty manoeuvring with bulky clothes.

75. Another safety issue arises with lightning. Rope bridges should not be constructed or operated if there is a chance of lightning.

ABSOLUTE STOP CONDITIONS

76. Each ropes and challenge course instructor and/or vendor must possess the ability to continually assess changes in the environment, which may directly affect participant safety as well as the appropriate policies to govern and outline such judgments. However, the following conditions must result in a complete cease of all rope and challenge course activities, and the appropriate actions taken as necessary:

- a. weather conditions which compromise the safety of participants (i.e. rain, lightning, extreme hot, extreme cold);
- b. any accidents or incidents where safety was compromised and the result was a reportable injury;
- c. any medical emergencies (related or unrelated to the rope challenge course activities); and
- d. the observance of any conduct/behaviour on the part of the rope challenge course staff/guides or participants which the OPI believes to compromise the safety of that individual and/or any other participant.

RISK ASSESSMENT AND MANAGEMENT

77. In an effort to reduce the potential for risks, the instructor must:

- a. have knowledge of site specific policies and procedures;
- b. have the ability to implement the emergency/evacuation plan;
- c. have the knowledge to appropriately medically screen participants;
- d. inform participants as to the nature of the activity they will undertake;
- e. have the ability to manage participant behaviour to minimize risks;
- f. be knowledgeable of site specific rescue procedures; and
- g. ensure that rescues can be accomplished in a timely manner.

LOGBOOK

78. Participants of bridge and or ropes and challenge course activities are encouraged to keep a logbook of their experiences.

DEBRIEF

79. Participants should be debriefed after the activity. Often, participants will feel a certain amount of accomplishment or they may require more input. Participants may benefit from a one on one debrief identifying the quality of their performance.

ANNEX A

ROPES AND CHALLENGE COURSE ACTIVITY

OBSTACLE COURSES

1. Obstacle courses are an easy way to allow for participants to challenge themselves both physically and mentally. The appeal for obstacle courses is that they can generally be constructed in a minimal amount of time using whatever resources are available. As they are not usually too intensive, they can be constructed and operated by most CIC personnel, as long as each activity is “spotted” by at least one assistant, and the overall course is supervised by an adult.
2. Existing military obstacle courses should only be operated by qualified personnel and site-specific standard operating procedures must be adhered to.
3. Participants can complete obstacle courses either individually or as a member of a team and are usually timed accordingly.
4. Materials, the size of the area, and the participants’ physical and mental level are the usual factors in determining what activities could be included in an obstacle course. Although not limited to, some examples of activities that could be included in obstacle courses are:
 - a. **Football Tire Run-through.** Tires (10 to 16 should be adequate) are lined up side by side in pairs. Participants must run while stepping in each tire. The assistants will run beside the participant to assist them in the event of a fall.
 - b. **Camouflage Net Run-under.** Stakes can be placed around a sand pit with the camouflage net attached to the top of the stakes. The stakes must be padded in the event of a participant coming into contact with them. Assistants will run beside the participants to ensure that they do not hit the stakes and make it straight through to the other side of the sand pit.
 - c. **Sand Bag Pull.** A sand bag is filled with sand so that it can be dragged around by the participant around two stakes. One stake will be placed at the start point and the other stake a distance of around 15 feet, depending on the physical ability of the participants and the weight of the sand bag. The assistant will ensure that the participant performs this activity safely and be ready to replace a stake if it comes out of the ground.
 - d. **“Jumar” Pull.** Jumars are a device that allows one-way movement over a rope. When there is an attempt to move it in the other direction, the jumar will not move. Two tables can be placed on the ground end to end and covered with a tarp, to allow ease of movement over the tables. Stakes (four) are placed at four ends and 10.5 mm minimum kernmantle rope is attached and tightened between the stakes. The jumars are placed on the rope at the starting point. Participants will lie down on their backs at the start point, and push the jumars up the length of the rope. When their arms are completely outstretched, the participant pulls, and as the jumars will not come back down the length of the rope, the participant will be pulled along the table. This action is completed until they reach the end of the jumar pull. Assistants will ensure that the participant does not come into contact with the stakes, and will also move the jumars from the end point back to the start point for the next participant.
 - e. **Tires on Table Run-over.** Two tables are lashed together to form an “A-frame”. Tires are then lashed to the tables for ease of traversing this activity. Participants will be expected to run up one side of the tables and down the other. Assistants will ensure that the participant is safe while moving over and ensure that participants do not jump off the top.
 - f. **Rope Ladder Walk-over.** A rope ladder can be constructed and should also have handrails built so that participants can hold onto while participating in this activity. Participants will move over the ladder placing a foot on each of the boards. Assistants will walk beside the participants to help them in the event of a fall.

- g. **Low Rope Bridge Postman's Walk.** A low rope bridge postman's walk can be constructed 1.5 to 2 feet off the ground. Assistants will walk beside the participants to assist in the event of the participant falling off the bridge.
- h. **Sand Bag Toss.** A sand bag(s) (depending on participants level of fitness, a lighter and heavier bag may be good options), is tossed by the participant over a fixed object, such as chin-up bars. Assistants will ensure that the participant does not injure themselves with the sand bags, and will retrieve the sand bags for the participants.
- i. **"Tyrolene Trolley" Traverse.** Although this activity can be run by an adult with no qualification, the set-up can be more difficult. A "Tyrolene Trolley" traverses is a trolley suspended in the air on top of two safety cables from anchor to anchor. It should be constructed no more than 8 feet (VACSTC), so that in the event of a fall, the distance the participant may fall would not be more than 1-2 feet. The participant will ascend a short ladder and hold onto the trolley. They will then softly jump off of the ladder and make their way across the traverse. Assistants will ensure that participants conduct this activity safely, assist in the event of a fall, and bring the trolley back to the start point for the next participant.

GROUP LEADERSHIP ACTIVITIES

5. The aim of group leadership activities is to provide the participants in a section with an opportunity to learn how to work more effectively and efficiently together. This would include brainstorming ideas for accomplishing tasks and then implementing them. It should be stressed that completing these activities is not necessarily the most important aspect and that even attempting the activities allows the section the opportunity to grow together.

6. Group leadership activities will only be conducted when supervised by an instructor.

7. Some examples for group leadership activities are, but are not limited to:

- a. **Bungie Back Competition.** The following is the minimum equipment needed to run this event:

- (1) harnesses;
- (2) helmets;
- (3) carabiners; and
- (4) bungie cord.

A method of marking (i.e. mine tape) the boundaries and the line the participant must cross to win.

The participants will be first checked to ensure that their helmet and harnesses are on properly. They will then be hooked into the bungie cord. On the "start" command, the participants run in the opposite direction until they are told to stop. They will be told to stop if either participant is able to cross the line, someone falls uncontrollably, or they have stopped moving forward. The winner will then proceed to the waiting area to continue on in the competition as this is usually run in a round robin format.

- b. **The Spider Web.** The aim of this activity is to get each member of the section through the spider web. No equipment is required for this activity, but the spider web must be constructed before the participants arrive.

Each opening in the spider web can only be used once and only those holes surrounded on all sides by ropes may be used. If any participant touches any rope, the activity ends and if time permits, the section should be allowed another opportunity to try again.



Figure 11A-1 The Spider Web Activity

- c. **The Wall.** The aim of this activity is to get each member of the section over the wall. This activity requires supervision by at least two instructors, one at the top of the wall and one at the bottom, to ensure the safety of all participants. All staff and participants must wear helmets.

This event is timed from the “start” command until the last foot of the last participant touches the platform at the top of the wall. Participants should be given the opportunity to formulate a plan before proceeding with the activity and if time permits, multiple attempts should be given.



Figure 11A-2 The Wall Activity

GENERAL BRIDGE CONSTRUCTION GUIDELINES

8. The running end for ropes will be wrapped a minimum of three times around the anchor and secured onto itself using an overhand know and two half hitches. The wraps will be neat with no space between them.

9. The safety cable will be wrapped around the anchor a minimum of three times. The wraps will be neat with no space between them. The cable will be fastened onto itself using three “crosby clamps” making sure that they alternate up and down.

10. Rope locks should be fastened to the end that will be tightened. Using a minimum of 10.5 mm kernmantle rope, a girth hitch is tied around the anchor with the running end attaching to the rope bridge using a “running prussik.” The ends are then tied off using a “double fisherman’s knot.”

11. Safety cables should be tightened before rope bridges as this places the most stress on anchors and the rope bridge will become loose.

CHEST HARNESSES

12. The use of chest harnesses is recommended for high ropes courses. A chest harness may be a component of an UIAA/CE approved harness, an approved UIAA/CE chest harness, or constructed using 1-in. tubular sling. It is up to the discretion of the instructor to make the determination of whether a chest harness must be worn but as a guideline, participants with a small frame and participants with a large frame should wear chest harnesses. Another factor in determining if a chest harness should be worn is whether the participant can wear their seat harness over their hips.

SAFETY TETHERS

13. Participants must be attached to a safety cable or safety rope at all times. This is done through the use of tethers. A tether is a length of rope that has three “double figure of eight knots” tied in it. The knots are tied in the middle and at the two ends. The knot in the middle is attached to the harness using a carabiner. The other ends will have a carabiner attached to them for “locking” onto the safety cable. Their length should be one that is as short as possible, while still allowing the participant to move freely through the course. If tethers are too long, additional stress is placed on the anchors and safety cable in the event of a fall. Usually a 4-ft length is sufficient for use as a safety tether.

14. Additionally, “personal fall arrest systems shall limit the maximum arresting force on the person to 900 lb when used with a seat harness and limit the free fall distance to no more than six feet.” (ACCT)

SAFETY CABLES

15. Safety cables must accompany all rope bridges that are more than 2 ft off the ground. Less than 2 ft, spotters must move alongside the participants to assist them in the event of a fall.

16. Safety cables must be used on bridges over 2 ft. Low rope bridges (≥ 1.5 m) may use 10.5 mm kernmantle rope. High rope bridges must use steel cables.

17. Cables must also be checked for signs of overloading, a reduction in the cables diameter, corrosion, kinks, protruding core, broken wires, and lightning strikes. Cables will be retired if there are signs of cracks, splits, pitting, rusting, and broken wires. (ACCT)

18. Thimbles may be used when attaching cable to an anchor so that the safety cable will be smooth and have no kinks or contact with the anchor.

ANCHORS

19. Anchors must be approved before construction can take place.

20. Trees will be visually inspected from the ground and at the point that contact will be made with ropes and cables.

21. Poles will be visually inspected from the ground and at the point that contact will be made with ropes and cables. The pole must be sound, be of sufficient diameter, and driven to sufficient depth. (ACCT)

22. Buildings must be inspected both at ground level and at height, and a review of the structural plans must take place by qualified personnel. (ACCT)

23. The Association for Challenge Course Technology recommends that the strength of anchors should be a minimum of 2500 lb.

BOLT CONNECTORS

24. The tightness of nuts must be verified prior to each use to ensure that there can be no movement of the bolt. Bolt connectors must be checked to ensure that there are no bends, distortion, severe nicks, gouges, cracks, excessive wear or abrasion, pitting due to corrosion, and also that they are of proper size. (ACCT)

25. The placement of bolt connectors onto the safety cables can be seen in Figure 11A-3:



Figure 11A-3 Placement of Bolt Connectors Onto Safety Cables

“BURMA BRIDGE”

26. A “burma bridge” consists of two handrails and a walkway, which are connected by rope spreaders. The cadet simply walks along the walkway while holding only the handrails for support. The spreaders are in place to prevent the handrails and walkway from spreading apart when weight is applied.

“LOOP BRIDGE”

27. A “loop bridge” is similar to a “burma bridge” with the exception that the walkway has been removed. Cadets are required to walk along the bridge by stepping onto the loops, while holding the handrails for support. Cadets are forced to look down while crossing this bridge.

28. The “burma bridge” is on the left, and the “loop bridge” is in the centre of Figure 11A-4. Note that there is appropriate signage and boundaries have been put in place.



Figure 11A-4 “Burma Bridge” and “Loop Bridge”

“POSTMAN’S WALK”

29. A “postman’s walk” consists of a walkway placed level between anchors and a handrail placed approximately 5 ft above the walkway. If the ropes are placed too far apart, shorter participants will not be able to complete this part of the course. To cross this bridge, the participant must turn sideways, placing both feet on the walkway, and grasp the handrail with both hands extended over their head. To cross, one simply slides hand and feet simultaneously over the ropes.

30. An example of the “postman’s walk” can be found in Figure 11A-5.



Figure 11A-5 “Postman’s Walk”

“COMMANDO CRAWL”

31. A “commando crawl” consists of one single rope spanning two anchors. The participant must lie down on the rope with one leg hooked up behind and one leg dangling freely. The participants **must then pull themselves across the rope while pushing with the hooked leg as needed.**

“ZIP LINE”

32. A “zip line” is not a bridge, but a means for the cadet to get from their position in the air to the ground. One example/design of a zip line consists of three ropes attached close together at the top anchor and lead to three separate anchors on the ground. Anchors are spaced apart from each other causing the ropes to form a triangle. The three ropes run through the centre of a “rappel ring” (or other similarly safe and sufficient object), causing the ropes to be pulled together as the participant descends. This slows the participant down and stops them at the bottom. Due to the fact that there is no safety cable and the rope has a tendency to stretch, careful inspection by the instructor must be conducted daily, prior to use. This line can be quite intimidating for some cadets so the use of an assistant instructor in the aiding of attaching and coaching participants through this activity can take place.

33. An overhead view of a “zip line” can be found in Figure 11A-6, noting that the three anchors are the white slabs in the middle of the picture.



Figure 11A-6 “Zip Line”

ACTIVITY LEVEL-INTENSITY

34. The progression matrix found at Annex E can be used.

ANNEX B

EQUIPMENT STANDARDS

1. The following minimum equipment standards are required:
 - a. **Helmets**
 - (1) Optimum – any manufacturer – UIAA/CE approved.
 - (2) Minimum – CF helmet liner.
 - b. **Ropes for Bridge Construction**
 - (1) Optimum – manila 25 mm (NNO 4042-21-878-4645) for main parts of bridge.
 - (2) Manila 12 mm (NNO 4020-21-882-6325) for spreaders (non-life supporting lines that assist with the stability of bridges).
 - (3) Minimum – kernmantle 10.5 mm minimum, UIAA/CE approved.
 - c. **Ropes for Safety Tethers**
 - (1) Optimum – kernmantle 10.5 mm minimum, UIAA/CE approved.
 - (2) Minimum – nylon 12 mm.
 - d. **Carabiners.** Screwgate locking – any manufacturer – minimum breaking strength 4000 lb aluminum or 4000 lb steel.
 - e. **Gloves.** Leather.
 - f. **Safety Tethers**
 - (1) Optimum – kernmantle 10.5 mm minimum, UIAA/CE approved.
 - (2) Minimum – nylon 12 mm 3 strand.
 - (3) Cable, optimum – 5/8-in. flexible galvanized aircraft cable or stainless steel wire rope.
 - (4) Minimum – 3/8-in. flexible galvanized aircraft cable or stainless steel wire rope (ACCT).
 - (5) Minimum strength 11 500 lb (ACCT).
 - (6) Wire rope clips-constructed from forged, galvanized steel or equivalent corrosion resistant U-bolt clips (ACCT).
 - g. **Boots.** Minimum – Boots must provide ankle support (CF combat boots).

h. **Harnesses**

- (1) Optimum-seat harness – any manufacturer – UIAA/CE approved w/chest harness as required.
- (2) Minimum – improvised “Swiss seat” (can be found in B-GL-318-002/PT-001, p. 2-7 to 2-12) w/improvised chest harness (made with 1-in. tubular slings as required).
- i. **Clothing.** Clothing should cover all areas of the body including legs and arms. Combat clothing with the sleeves down will accomplish this. Participants should also remove objects from their bodies that could impede their crossing of bridges or that could lead to injury. Under no circumstances should a participant be allowed to carry an item that would have the capability of cutting their harness, the ropes course, or their safety tethers (ACCT).
- j. **Hessian.** To protect structure or trees from wear due to friction and contact.
- k. **Pulleys.** Minimum breaking strength of 22.22 kN (5000 lb) (ACCT).

ANNEX C

SAFETY EQUIPMENT

1. The following safety equipment is required at each site:
 - a. **First Aid Kit.** Suitable for number of personnel on the site.
 - b. **Stretcher:**
 - (1) Optimum – litter, stokes:
 - (a) NSN 6530-21-809-9755 w/spinal board; or
 - (b) NSN 6530-21-868-5609.
 - (2) Minimum – litter folding:
 - (a) NSN 6530-21-108-1610 w/spinal board; or
 - (b) NSN 6530-21-868-5609.
 - c. **Communications Equipment.** Radiotelephone or cellular phone.
 - d. **Safety Vehicle**
 - (1) Ready to and capable of carrying a stretcher.
 - (2) Safety vehicle driver, St. John's Ambulance first aid qualified with CPR.
 - e. **Ladder.** Must be sound and suitable for the intended use (ACCT).

ANNEX D

SAFETY CHECKLIST

1. The following checklist should be observed on all rope bridging training, but is not limited to:
 - a. Participants must be attached to a safety cable or safety rope at all times. This is done through the use of tethers. A tether is a length of rope that has three "double figure of eight knots" tied in it. The knots are tied in the middle and at the two ends. The knot in the middle is attached to the harness.
 - b. Helmets shall be properly secured and worn at all time except in a designated "helmets off area".
 - c. Participants must be under direct supervision of a qualified instructor although assistant instructors may assist.
 - d. Participants have been briefed as to the activity they will be undertaking and are wearing proper clothing and gloves.
 - e. Rope bridges have been inspected and are in good repair.
 - f. People not participating in the activity are kept clear of the area in a designated area.
 - g. No more than one participant is on any one bridge.
2. Only approved sites are used. Arborists and/or engineers may have to be consulted for approval of a site.

ANNEX E

ROPES AND CHALLENGE COURSE PROGRESSION MATRIX

Age	Star Level	Intensity of the Activity	Delivery Method	Safety Skills	Army Cadet Physical Fitness Level	Group Size	Instructor to Cadet Ratio	Training Provider	Technical Instruction/Leadership	Authority
12-18	Green to NSCE	Famil	Day Instruction	1 to 4	None	None	1:10	LHQ	CIC/Military Contract With Trade	Det
13-18	Red to NSCE	Famil/Basic	Day Instruction	1 to 4	None	None	1:10	LHQ	CIC/Military Contract With Trade	Det
14-16	Silver to NSCE	Famil/Basic	Day Instruction	1 to 4	None	None	1:10	LHQ/Zone	CIC/Military Contract With Trade	Det/Region
15-18	Silver to NSCE	Intermediate	Day Instruction	1 to 4	Bronze	Max 20	1:10	LHQ/Zone	CIC/Military Contract With Trade	Det/Region
16-18	Gold to NSCE	Advanced	Day Trip	1 to 6	Silver	Max 15	1:10	Zone/Region	CIC/Military Contract With Trade	Det/Region/ National
17-18	Gold to NSCE	Advanced	Day Trip	1 to 6	Silver	Max 10	1:10	Zone/Region	CIC/Military Contract With Trade	Det/Region/ National

Figure 11E-1 (Sheet 1 of 2) Ropes and Challenge Course Progression Matrix

Familiarization Includes: Low Ropes Course

- 1 Putting on harnesses
- 2 Transferring from bridge to bridge
- 3 Use of safety tethers
- 4 Safety issues pertaining to course

Basic Includes: Low Ropes Course

- 1 Crossing of burma bridge
- 2 Crossing of loop bridge
- 3 Bridges that are not complex

Intermediate Includes: High Ropes Course

- 1 Crossing of a postman's walk
- 2 Crossing of a commando crawl
- 3 Use of a zip line
- 4 Construction of a postman's walk
- 5 Construction of a commando crawl
- 6 Addition of other activities including canoeing, orienteering, and abseiling, as part of a day trip
- 7 Coaching of participants
- 8 Assisting in operation of course

Advanced Includes: High Ropes Course

- 1 Construction of a zip line
- 2 Construction of a loop bridge
- 3 Construction of a burma bridge
- 4 Addition of other activities including canoeing, orienteering, and abseiling, as part of a day trip
- 5 Coaching of participants
- 6 Assisting in operation of course

Safety Skills

- 1 Displays good response/behaviour to direction
- 2 Uses and wears safety equipment properly
- 3 Follows rules of ropes course
- 4 Does not show signs of fear towards course
- 5 Knowledge of knots
- 6 Ability to work while at height

Figure 11E-1 (Sheet 2 of 2) Ropes and Challenge Course Progression Matrix

ANNEX F

EMERGENCY/EVACUATION PLAN

DUTIES AND RESPONSIBILITIES OF DESIGNATED PERSONS DURING AN EVACUATION

1. The designated first aid attendant will:
 - a. suspend training;
 - b. ensure all personnel are in a safe zone;
 - c. tend to the casualty;
 - d. assess situation and contact OIC;
 - e. arrange evacuation;
 - f. monitor the casualty; and
 - g. travel with patient if needed.
2. The designated driver will:
 - a. take instructions from first aid attendant and control person;
 - b. prepare safety/evacuation vehicle for casualty and attendant;
 - c. start vehicle and ensure its readiness to move;
 - d. move vehicle as close to the vicinity as safely possible;
 - e. depart area on command from first aid attendant;
 - f. know route to hospital; and
 - g. maintain communication with control person during transport.
3. The designated control person will:
 - a. assume control of remaining personnel;
 - b. maintain communication with first aid attendant;
 - c. record information regarding information and if possible, photograph the site;
 - d. assist with the evacuation; and
 - e. assist with the vehicle and preparation.

ANNEX G

INSPECTION OF A ROPES BRIDGE SITE (ACCT)

1. Inspection prior to use should be conducted by a qualified instructor in rope bridging for the integrity of all hardware, materials, equipment, and condition of the environment in the vicinity. The following items for documentation are recommended but not limited to, and will be included in the legal logbook of the instructor:

- a. date the inspection was performed;
- b. who inspected and their qualifications and experience;
- c. history of the site;
- d. list of all elements inspected;
- e. condition of each element inspected;
- f. repairs or modifications made; and
- g. recommendations for future repairs or modifications.

ANNEX H

REFERENCES

Challenge Course Standards. 5th ed. ACCT, Martin Michigan, 2002.

CHAPTER 12

INITIATIVE GAMES AND PROBLEM-SOLVING

DESCRIPTION OF ACTIVITY

1. The following chapter does not describe an adventure activity. Initiative games and problem-solving activities are used during adventure activities as concurrent or parallel activities. This chapter presents some problem-solving and initiative game suggestions which can be modified or adapted for use.

2. Initiative games are a great tool to use when building teams and getting to know people in a group. With more experienced groups or people who are already familiar with each other. These games are excellent resources that can be applied to any level of group and many of the games can be used for several different age groups. Look for progressions and individual instructions for each game. The majority of the games are also very portable and require very little equipment. These games are also good for building leadership within a group setting. Trust is something that requires a lot of effort to build and can be broken in an instant if it is not respected. Within a group trust is essential for maximum efficiency of the group and for the most enjoyable experience for all participants. To build trust within a group these games require that participants work with each other to solve problems. The use of super ordinate goals is one of the few ways that consistently produces cooperation within a group setting. These games are intended to produce situations with super ordinate goals. Super ordinate goals are those goals that require all participants in a group to cooperate in order for the objective to be reached successfully.

3. This chapter has broken activities up into three broad basic categories. These categories are introductory games (Annex A), active games (Annex B), and non-active games (Annex C). Introductory games are intended to introduce people to new members in a group. Active games are games that will require physical effort to accomplish the goals. Active games are a great way to get cadets up, moving around and having a little fun. Non-active games require analysis of a situation and thought to solve the problems presented. Non-active games can be used in more confined settings when staff would like to see cadets working with each other and being productive. The non-active games are also more commonly called problem-solving activities.

AIM OF ACTIVITY

4. The aim of initiative games within the CCM is to develop teamwork. Initiative games should be used in coordination with other activities in the CCM. Initiative games can be incorporated into training between activities, after hours or as a relaxing activity during free time. Initiative games are not intended to be a dominant daily activity, but should rather be used to supplement other CCM training. Introductory games should be used to introduce cadets to initiative games. Active and non-active games are intended for use with groups of cadets who are familiar with each other already. These games also increase trust and cooperation within a group setting. Initiative games are a fun way to get to know people within a group and to encourage teamwork.

CANADIAN REGULATIONS CONCERNING SPECIFIC ACTIVITIES

5. There are no current Canadian regulations surrounding the use of initiative games. Common sense, ethical, reflexive and safety considerations in all situations should apply to these activities.

MILITARY REGULATIONS

6. There are no current military regulations surrounding the use of initiative games. In these situations the regulations surrounding supervising cadets during training should be used to govern staffing requirements. For each game there are optimal numbers of participants. Some of these optimal numbers are less than the number of cadets who can be supervised at one time by an officer. The use of senior cadets as group supervisors is suggested in these situations.

CCM SAFETY REGULATIONS

7. There are no current safety regulations surrounding the use of initiative games within the CCM. In circumstances where initiative games are being used safety guidelines outlined for training will be used to govern initiative games.

AUTHORITY LEVEL

8. All staff members at the local, regional and national levels can use these games. All games require that participants have an open mind and willingness to participate. There is no concern with using any of these games with all age groups of cadets. These games are also useful within officer training settings and with civilian groups.

GOVERNING BODIES

9. Within the area of initiative games there are no current governing bodies. However there are many excellent resources available in local libraries and bookstores, there is also a small collection of games included with this chapter. This collection of games is intended to provide some basic information on games for officers and group leaders.

10. There are no costs associated with most activities. Some of the games may require minimal equipment. These needs can be fulfilled easily at the corps level.

11. For more information staff are encouraged to consult the reference list at the end of this chapter for related resources. Additional insurance and waivers should not be required for these games. Safety requirements and concern for safety within each activity are always to be considered by the group leader. These games are not intended to be high-risk activities. However, group leaders must at all times ensure that safety is considered.

12. Safety of the group rests solely with the group leader at all times. Cadet green cards and health cards should be on hand during all training in case of emergency.

EQUIPMENT REQUIREMENTS

13. There are no formal requirements for safety equipment when using initiative games. First aid supplies along with qualified first aid personnel should be employed in case of minor injury. In the case of major injury medical professionals should be consulted immediately.

14. All participants should be dressed in comfortable clothing for these games. For active games PT gear or combat clothing is recommended. In the case of problem-solving activities, any type of clothing is appropriate. Check the individual requirements for each game for additional equipment required.

TRANSPORTATION REQUIREMENTS

15. Transportation is not required for any of these activities.

CADET SKILL LEVEL AND PROGRESSION

16. Each game or activity has a recommended progression and all games can be used for all groups of cadets. Progression within activities will vary depending upon the skill level of the group. Begin at the lowest level, and only progress when the whole group is ready to move on. It is the responsibility of the group leader to ensure that progression is not done too quickly as safety concerns are increased when progression is done too quickly.

17. Cadets must successfully complete one progression level prior to moving on to the next level. Progressing too quickly will also defeat the purpose of the games as cadets will become frustrated and will not be successful if the task is too difficult. The intention of these games is to provide a challenge for all cadets but the challenge must be achievable for the games to work effectively to build trust within the group.

18. Progression for each activity is listed within the game description. There are three main groups of activities contained within this chapter, introductory, active and non-active games.

19. The same progression considerations should be used when working with adult groups.

PHYSICAL FITNESS

20. Physical fitness levels vary between activities. For the non-active games there is no minimum requirement for physical fitness. For all other games the fitness requirements and fitness of individual participants is the responsibility of the group leader.

21. The group leader must consider the physical demands of the activity and adjust the level of difficulty according to the group. Adaptation of these games, as with progression, is the responsibility of the group leader.

QUALIFICATIONS, EXPERIENCE AND FITNESS OF LEADERS AND OPI

22. There are no national qualifications surrounding SMEs in the field of initiative games.

23. After reading the short description all staff can be considered qualified to conduct initiative games. The games are not difficult to understand and require only limited preparation.

24. Optimal numbers of participants for each activity are suggested, however these are flexible.

25. Qualified first aid personnel should be on the grounds at all times when initiative games are being played. First aid kits must have sufficient supplies for the number of participants in the group.

26. Group leaders are to try some of these activities on their own time to become more familiar with the games before working with a large group.

REQUIRED PREPARATORY WORK

27. A level playing field or gymnasium is required for active games. For non-active and introductory games any safe gathering area is appropriate. Space requirements will also vary with individual games. Staff should keep space requirements and restrictions in mind when choosing a game.

INSTRUCTOR TO CADET RATIOS

28. Officers must adhere to CATO 13-12 for initiative games. ■

29. Optimal numbers of participants are suggested for each game. These suggestions are flexible and can be adapted to individual groups.

30. Considerations for safety should follow outlined safety ratios for training in the CCM.

MAX AND MIN NUMBER OF PARTICIPANTS

31. The number of participants is flexible and depends on the skill level and individual activity.

MANAGEMENT GUIDELINES

32. To reduce the number of people in the group senior cadets can be used to supervise small groups. Only senior cadets familiar with the games should be permitted to supervise small groups under the direction of the group leader.

33. The officer in charge maintains full responsibility for all cadets undergoing training. When larger groups have been divided leaders are reminded to consider span of control for supervision of all cadets.

TRAINING GUIDELINES

34. Introductory training is not required for these activities. However, all participants must be present to hear rules and guidelines for each game. All participants should be familiar with the chain of command and authority within the CCM. Following the directions of the group leader at all times is an essential requirement for all participants.

NECESSARY PLANNING

35. All participants should be advised of the location of local first aid personnel. A briefing of evacuation and emergency plans for each building should be conducted to commencing the activities.

36. In the case of outdoor activities, emergency plans and RV locations should also be confirmed prior to commencing any activity. Emergency planning is dependant on the individual location of all activities. Emergency briefings must be conducted prior to all training.

TIME OF DAY/YEAR REGULATIONS

37. All non-active and introductory initiative games can be conducted at any time of the year.

38. Participation in these games should be limited to normal training hours.

39. When planning for active initiative games, local weather conditions should be considered and the leader should adjust location of activities accordingly. The leader is responsible for determining the fitness of the environment for training.

40. Extremely hot or cold conditions should be avoided for all active games.

■ DURATION AND INTENSITY LEVEL OF THE ACTIVITY

41. Activities should be conducted in not more than 50-minute continuous time blocks with 10 minutes of rest between activities. Some activities will not take the full amount of time.

42. The group leader must observe the group at all times. Depending on the intensity of the game, the leader of the group can give more rest as required. More rest will be required in hot conditions.

43. Considerations for hydration and rest are the responsibility of the group leader.

■

44. Progression for each activity is listed under the description of all activities. Paying close attention to the different levels of progression will maximize the effectiveness of the activities in building team cooperation and trust. Do not skip progression levels when adapting the activities. The successful completion of all progression levels will help to impress upon group members the feelings of pride when tasks are completed.

ENVIRONMENTAL CONSIDERATIONS

45. “Due diligence” should govern the use of all training areas, as per TREES requirement. There are no additional requirements when initiative games are being conducted.

WEATHER CONSIDERATIONS

46. Location and clothing requirements are to be determined by, and are the responsibility of the group leader. Local weather forecasts should be consulted in advance of the planned training. Seasonally appropriate comfortable clothing is recommended.

ABSOLUTE STOP CONDITIONS

47. Games will be ceased immediately if at any point the group leader feels that the safety of the group has been compromised in any way.
48. Group leaders may choose to revert to a lower progression level and resume the activity or the activity can be terminated completely. If the activity is terminated completely, another activity can be chosen to resume training.
49. Safety is at all times the responsibility of the group leader.

RISK ASSESSMENT AND MANAGEMENT

50. Within this chapter there are some basic considerations for risk assessment guidelines. These guidelines are an outline but this is not an exhaustive list. The assessment of risk in individual situations is the responsibility of the group leader:

- a. temperature;
- b. equipment;
- c. age, and experience of participants;
- d. local weather conditions; and
- e. skill level of the leader.

DEBRIEF

51. Both cadets and staff should be debriefed after the activity. Often, participants will feel a certain amount of accomplishment or they may require more input. Participants may benefit from a one on one debrief identifying the quality of their performance.

ANNEX A

INTRODUCTION LEVEL

BINGO

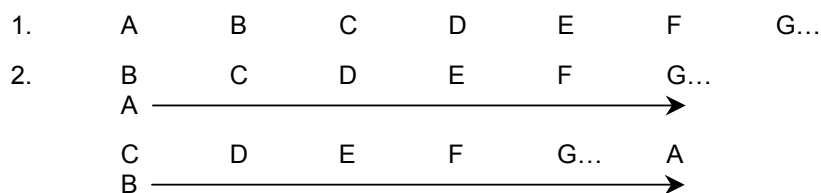
1. **Objectives.** Introduce group members to each other, learn about other group members, encourage initiative.
2. **Level.** Introductory.
3. **Supplies**
 - a. Paper.
 - b. Bingo sheets.
4. **Description.** All members of the group are given a Bingo sheet. Everybody in the group must mingle with other people in the group and ask questions to find out about other people. The idea is to fill in the Bingo sheet by having people sign in squares that apply to them. First person to get a complete line of squares filled calls out Bingo!!! The group leader will then have people gather up and will confirm the correct answers. Part of the idea is to have people listen while the leader reads out the correct answers to learn more about the people in the group.
5. **Diagram**

Has worked in QM	Has a first aid course	Passed Green star	Is in the Band	Was at the Christmas Dinner
Is a marksman	Has Gold fitness	Is taking Math in school	Has been the Drum Major	Was at the last Remembrance Day Parade
Has been a staff cadet	Has been to an advanced camp	***FREE***	Has taught a class	Has been on a canoe trip
Was on the last FTX	Has been to camp	Wants to be in the Regular forces	Has been abseiling	Has lived in another province
Has been to Ottawa	Has a birthday in the same month as me	Works at a part time job	Plays on a hockey team	Is on Drill Team

6. **Optimal Number of Participants.** Max 20.
7. **Progression.** None.
8. **Solution.** Fill in a line (straight or diagonal) and call out Bingo!!!

GREETING LINE

1. **Objectives.** Introduce new members of a group to each other.
2. **Level.** Introductory.
3. **Supplies.** None.
4. **Description.** All members of the group line up in a single file. The person on the end starts by going in front of the other people and greeting them. As each person begins the greeting process the person at the end of the line goes around to the front and passes down the greeting line. When that person reaches the end of the line they turn back around and greet the other people as they come by. Each person will greet all of the other people in the group.
5. **Diagram**



6. **Optimal Number of Participants.** Max 20.
7. **Progression.** None.
8. **Solution.** Greet all people in the group.

NAME GAME

1. **Objectives.** Learn people's names, public speaking, get to know people in a group.
2. **Level.** Introductory.
3. **Supplies.** None.
4. **Description.** The group forms a circle and one person begins by saying their name and a fruit that begins with the same letter as the first letter of their name. The second person repeats the first person's name and fruit, and then follows with their own name and fruit. This continues until the last person in the circle attempts to name all people in the circle and each person's fruit.
5. **Optimal Number of Participants.** More people will make the game more difficult, however too many people will result in disinterest.
6. **Progression.** None.
7. **Solution.** See how many people in the group can be remembered by a single person.

TOILET PAPER INTRODUCTION

1. **Objectives.** Introduce members of a team to each other, public speaking, learn about team members.
2. **Level.** Introductory.
3. **Supplies.** One roll toilet paper (divided into squares).
4. **Description.** Instruct each participant to take some toilet paper and pass the roll along. Do not give instructions as to how much toilet paper to take. When all people have some toilet paper tell people that for each square of toilet paper that they took they must reveal one interesting fact to the group about themselves.
5. **Diagram**



6. **Optimal Number of Participants.** At the discretion of the leader.
7. **Solution.** It is hoped that some participants will take larger amounts of toilet paper and will introduce themselves in detail to the group.

ANNEX B

ACTIVE LEVEL

BLINDFOLDED RELAY

1. **Objectives.** Teamwork, trust, communication skills, listening, organization.
2. **Level.** Active.
3. **Supplies**
 - a. Blindfolds.
 - b. Various objects.
4. **Description.** Break the group into two teams of five. One person on each team will act as the leader; all others are runners. Runners are blindfolded for this activity. The leaders of both teams are placed in a central location and are not allowed to move during the game. The leaders must use voice commands to get the runners to pick up all objects in the surrounding area and bring them back to the team leaders location. The team to bring back all objects first scores a point.
5. **Diagram**



6. **Optimal Number of Participants.** 10.
7. **Progression.** No progression.
8. **Solution.** Teams collect all objects from surrounding area. Be very careful during this game as the runners are blindfolded and cannot see where they are walking.

BODY SPELLING

1. **Objectives.** Teamwork, creative thinking, competition.
2. **Level.** Active.
3. **Objectives.** Teamwork, build non-verbal communication skills, team competition.
4. **Supplies**
 - a. Index card.
 - b. Marker.
5. **Description.** Divide group into two teams. Have one member from each team approach the group leader and view a word on an index card. Both people must use their body to try and spell out the word to their team. Talking by the speller is not permitted. First team to guess the word gets a point.
6. **Optimal Number of Participants.** At the discretion of the leader, smaller groups are more effective.
7. **Progression.** Move on to commonly known phrases.
8. **Solution.** The first team to successfully guess the word wins. Encourage participants to be creative.

BUM SPELLING

1. **Objectives.** Teamwork, competition, creative thinking.
2. **Level.** Active.
3. **Supplies**
 - a. Index cards.
 - b. Marker.
4. **Description.** Divide the group into two teams. Have one person from each team approach the leader. The group leader shows both people an index card with a word on it. Upon being given the command to begin the two people try to spell out that word with their bum to their team. First team to correctly identify the word is given a point.
5. **Diagram**



6. **Optimal Number of Participants.** At the discretion of the leader, smaller teams are preferable.
7. **Progression**
 - a. Have one team try to spell and guess for one minute with the second team watching. If a guess is not successfully made give the other team a chance to steal the point with a correct guess. Alternate teams for spelling and stealing.
 - b. Move on to spelling longer words or phrases.
8. **Solution.** Teams successfully guess the words being spelled out by their team members.

GUIDED TOUR

1. **Objectives.** Build trust between group members, experience environment without sight, communication.
2. **Level.** Active.
3. **Supplies.** Blindfolds.
4. **Description.** Pair up team members and blindfold on person. The blindfolded person must rely on the seeing person to lead them through a course. When the group has successfully navigated through the course, have partners switch blindfolds and try a new route.
5. **Diagram**



6. **Optimal Number of Participants.** Even number of participants, maximum 12 people. Ensure that safety is stressed while people are blindfolded.
7. **Progression.** Try having people guess where they are after a short walk.
8. **Solution.** All participants travel through the course successfully.

HUMAN Pictionary

1. **Objectives.** Teamwork, non-verbal communication, competition.
2. **Level.** Active.
3. **Supplies**
 - a. Paper.
 - b. Marker.
4. **Description.** People are divided into two teams. One volunteer from each team comes up to the group leader and looks at a common word written down on a piece of paper. Both people try to act out this word; first team to guess correctly wins a point. People acting out the words cannot speak to their team members.
5. **Optimal Number of Participants.** 10, five per team.
6. **Progression.** Move on to more difficult or obscure words. Have one person acting out the word while the other team watches. Give 30 seconds or a minute then allow the team that is watching to guess to steal a point.
7. **Solution.** The team members correctly guess word or phrase.

LOG ROLL

1. **Objectives.** Group problem-solving, teamwork, trust building.
2. **Level.** Active.
3. **Supplies.** None.
4. **Description.** All participants align themselves on the ground side by side, except for one. The single participant left over lies down perpendicular on the other participants. The parallel participants roll and in the same direction moving the perpendicular from one side of the line to the other.
5. **Diagram**



6. **Optimal Number of Participants.** 10 to 12 participants will produce optimal results, however this number is flexible.
7. **Progression.** Increase the number of perpendicular participants rolling at one time.
8. **Solution.** Perpendicular participant successfully rolls to the other side of the parallel line.

MILK RUN

1. **Objectives.** Teamwork, cooperation, group problem-solving.
2. **Level.** Active.
3. **Supplies.** Milk crate.
4. **Description.** All participants are gathered around a milk crate (which is upside-down). Participants are instructed to try to get as many people as possible on top of the milk crate and hold for three seconds. All people must be off the ground for a full three seconds.
5. **Diagram**



6. **Optimal Number of Participants.** Usually more than six is very difficult.
7. **Progression.** Try with one, two, three, etc. See how many people can get off the ground.
8. **Solution.** All people must be off the ground for three seconds.

PEOPLE PASS

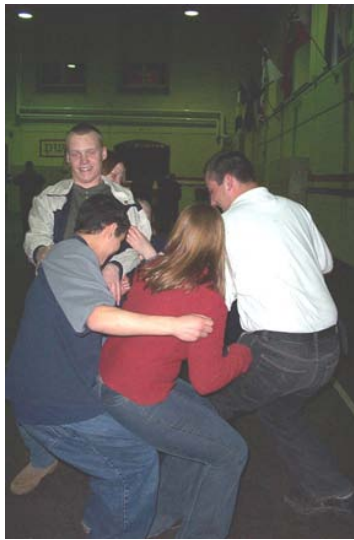
1. **Objectives.** Teamwork, collective problem-solving, trust building.
2. **Level.** Active.
3. **Supplies.** None.
4. **Description.** All participants, except two, line up parallel to each other on the ground and stretch out their arms. The leader lowers the perpendicular participant down onto the out stretched arms of the parallel participants. All parallel participants work together to pass the perpendicular participant along the line to the other end. At the other end the leader helps to lower the perpendicular participant to the ground. All participants should be given the opportunity to try out the activity.
5. **Diagram**



6. **Optimal Number of Participants.** At least 10 people are required to make this activity successful.
7. **Progression**
 - a. Begin with lighter people in the group and progress to the heavier people.
 - b. As confidence is gained with the lighter participants the heavier people will be easier to transport.
8. **Solution.** All people successfully travel from one end of the line to the other.

SITTING CIRCLE

1. **Objectives.** Teamwork, trust, coordination, communication.
2. **Level.** Active.
3. **Supplies.** None.
4. **Description.** All people in the group make a circle. Have the circle turn to the right and close in towards the centre. When all people are as close to each other as possible, the group leader will give the direction for all people to sit down. People will sit on the knees of the person behind them.
5. **Diagram**



6. **Optimal Number of Participants.** Six to 12.
7. **Progression.** When the circle has been mastered have people try to take a step while sitting down.
8. **Solution.** Have the group balance for as long as possible and try to walk.

WHO AM I?

1. **Objectives.** Encourage teamwork, critical thinking, cooperation, problem-solving skills, listening.
2. **Level.** Active.
3. **Supplies**
 - a. Index cards.
 - b. Markers.
 - c. Tape.
4. **Description.** All members of the group have an index card taped on their back by the group leader. Index cards have the names of common people on them. By only asking Yes/No questions all participants must figure out the name of the person on their back.
5. **Optimal Number of Participants.** 10 to 12 people, however this is flexible and remains at the discretion of the leader.
6. **Progression**
 - a. Introduce places, activities, and other common items onto the index cards.
 - b. Only allow participants to ask each other person one question.
7. **Solution.** Participants successfully guess what is written on the index card.

ANNEX C**NON-ACTIVE LEVEL****BROKEN TELEPHONE**

1. **Objectives.** Improve listening skills, concentration, and teamwork.
2. **Level.** Non-active.
3. **Supplies.** None.
4. **Description.** The group leader has participants sit in a circle. One person starts by whispering a message to the person next to them. That person has to whisper the same message to the next person, and so on until the last person in the group receives the message. The last person will say the message out loud. The first person then tells the group what the original message was. The idea is that the message will change as it is passed around the circle.
5. **Diagram**



6. **Optimal Number of Participants.** Max 15.
7. **Progression.** None.
8. **Solution.** Try to have the same message at the end as you started with.

BUZZ

1. **Level.** Non-active.
2. **Supplies.** None.
3. **Description.** All participants sit in a circle. A count is started by the group leader and is continued around the circle. Each time the number with 7 in it is to be named, the person replaces that number with the word "BUZZ". If a mistake is made that person is eliminated until a single winner is declared.
4. **Optimal Number of Participants.** At the discretion of the leader, not more than 12 or people may become disinterested.
5. **Progression**
 - a. Try to increase speed of the count.
 - b. Each time a number with 7 in it or a multiple of 7 is to be named "BUZZ" is used.
 - c. When "BUZZ" is used the direction of the count also changes.
 - d. Introduce a second word to replace another number, e.g. replace 4 with "SNAP" and repeat progression.
6. **Solution.** Continue the game until a winner is declared.

FOLLOWING DIRECTIONS

1. **Level.** Non-active.
2. **Supplies**
 - a. Pen and paper.
 - b. Pictures.
3. **Description.** Participants are put in pairs. One person is the communicator and the second is the listener. The communicator is given a picture and the listener is given pen and paper. The communicator gives verbal directions to the listener on how to reproduce the picture. The listener cannot ask any questions during the activity and the communicator cannot look at the picture during the activity. When the communicator feels that the picture should be complete both participants can view both pictures.
4. **Diagram**



5. **Optimal Number of Participants.** An even number of participants is necessary for this activity. The number of participants for this activity is at the discretion of the group leader.
6. **Progression**
 - a. Allow listeners to ask questions of the communicator for clarification.
 - b. Allow the communicator to receive questions and see the picture the listener is drawing, but not allow the listener to see the communicator's picture.
7. **Solution.** Most effective communication will produce pictures that most closely resemble the pictures of the communicator.

PSYC!

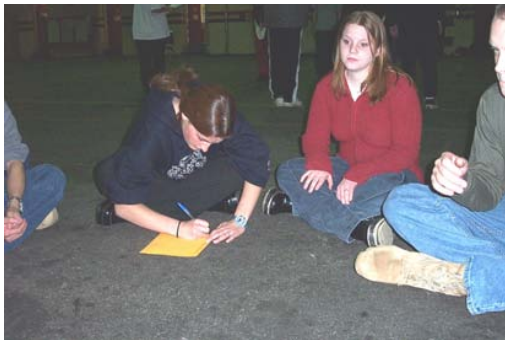
1. **Objectives.** Improve listening skills, encourage people to pay attention to detail.
2. **Level.** Non-active.
3. **Supplies**
 - a. Pen and paper.
 - b. List words.
4. **Description.** Instruct the group members to remember the words in the list that will be read out by the leader. The group leader reads out the following list of words. Prick, Thread, Pin, Injection, Yarn, Sharp, Sew, Repair, Silver, Point, Poke. Read the list only once fairly quickly to the group. Following reading of the list instruct participants to write down all words that they can remember.
5. **Optimal Number of Participants.** At the discretion of the leader.
6. **Progression.** Try using groups of about 10 to 12 words relating to adventure training. For example Canoeing, Biking, Hiking, Biathlon. Develop your own set of words.
7. **Solution.** It is hoped that participants will inadvertently write down the word Needle, which is not in the list of words. This activity is intended to teach people to listen very carefully to all instructions.

QUESTIONS

1. **Objectives.** Creative thinking, listening, communication.
2. **Level.** Non-active.
3. **Supplies.** None.
4. **Description.** Have all group members sit in a circle. Instruct people that they must not answer questions, but only respond with other questions. One person will begin by asking a question to a person. That person will then direct another question to a different person. The key is to try and trick people into answering the questions being asked of them. If a person answers a question they are eliminated until only a single person remains.
5. **Optimal Number of Participants.** Up to 12, at the discretion of the leader.
6. **Progression**
 - a. Increase the speed of the questions.
 - b. Have more than one person ask questions at a time. Resulting in several questions being asked at one time.
7. **Solution.** A single person remains as the game winner.

STORY TELLING

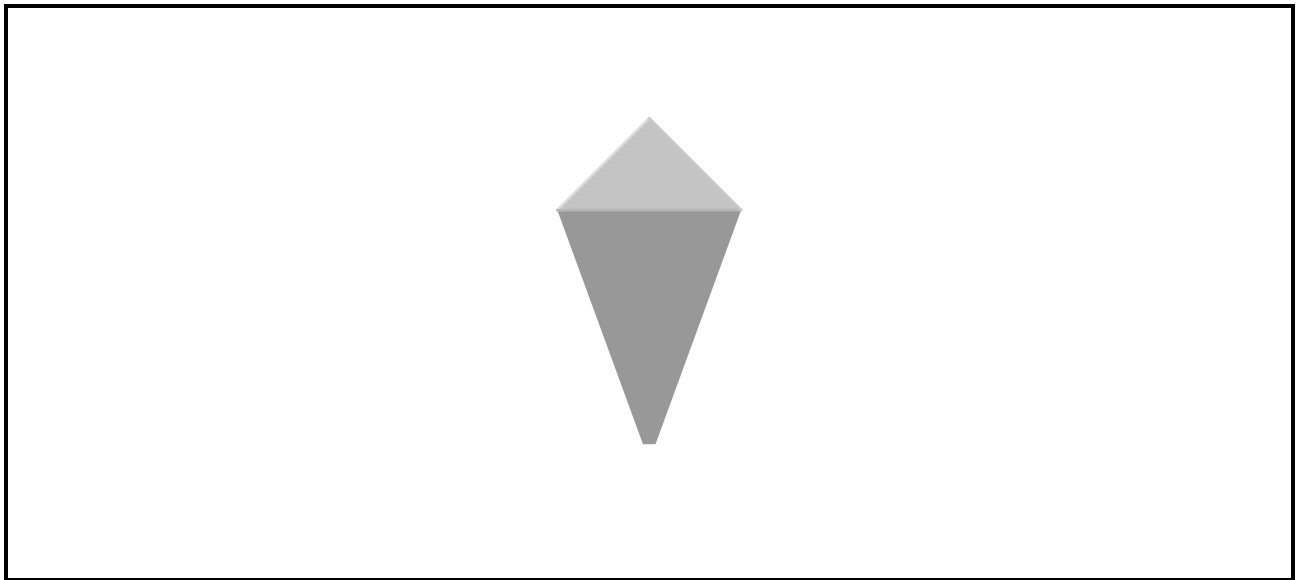
1. **Objectives.** Patience, communication, following directions, public speaking.
2. **Level.** Non-active.
3. **Supplies**
 - a. Paper.
 - b. Pen.
4. **Description.** All group members sit in a circle and one person is given a paper and pen. The group leader explains that the group is creating a story. The first person writes out one line of the story and fold over the paper so that the next person cannot see the line. The next line is started with one word before the paper is passed along. The second person that receives the paper looks at the single exposed word and continues the thought or sentence. When they have written their line they fold the paper over so that the writing cannot be seen, they also leave one word exposed. This process continues until each person has had a chance to write a line of the story. When the last person finished their line they pass the paper on to the person who began the story. The person who began the story reads out story for the whole group to hear.
5. **Diagram**



6. **Optimal Number of Participants.** Maximum 15, with too many people the activity will take too long and people will lose interest.
7. **Solution.** The story is read aloud to the group.

TRIANGLES

1. **Objectives.** Critical thinking, problem-solving.
2. **Level.** Non-active.
3. **Supplies.** Six sticks (all the same length).
4. **Description.** Give six sticks to the group and explain that they must form four equilateral (all sides the same length) triangles with the sticks.
5. **Diagram**



6. **Optimal Number of Participants.** Up to 20 but try to have as many sets of sticks as possible, only about 3 or 4 people can work on a set of sticks.
7. **Solution.** The solution is a 3-D object, a triangular prism. Most people will not think to use a 3-D object.

ANNEX D

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GLOSSARY

Adventure Centre

Adventure centre consolidates resources that are above the LHQ level to provide challenging adventure training opportunities that further develop skills while promoting personal growth.

Adventure Training

Adventure training is the vehicle to develop leadership skills, teamwork and personal growth through challenging adventure activities, with a perception of risk. It creates both physical and mental challenges that are designed to promote and maintain enthusiasm towards the Army Cadet program.

Army Cadet Challenge

An adventure race for Army Cadets that challenges their adventure, bush craft, fieldcraft and leadership and fitness.

CAATC

The Cadet Adventure and Athletic Training Club is an informal group within the LHQ that meets to participate in extra adventure and physical fitness training and activities.

Day Instruction

Usually occurring in or near an urban or rural centre; single site oriented; less than 30 minutes from support services.

Day Tripping

Usually close to a municipality, but involving some travel through a parkland area, private or public property; 30 minutes to three hours from support services.

“Due Diligence”

Actions expected of a reasonable person to manage risks.

Expedition

An expedition is any activity that consists of dynamic travel of **no less than 36 hours** in duration, where there is a clear goal associated with the activity. Expeditions include Army Cadet Adventure Training Activity (ACATA) components and inherently practice the application of star program skills.

Level of Activity – Advanced

- a. Few new skills are introduced;
- b. Success depends on participants drawing heavily from previous training and experiences and adapting to meet challenges of activity/training;
- c. Duration and intensity are now at their highest level;
- d. Participants may have varying degrees of success;
- e. Risk, both perceived and real, is considered significant to all;
- f. Support requirements normally exceed those that the LHQ or zone can provide;
- g. Location is remote and outside assistance may not be immediately available; and
- h. The nature of the terrain or water features poses numerous hazards that are not immediately apparent to participants.

GLOSSARY (Cont)

Level of Activity – Basic

- a. New skills are introduced and previously learned skills are practiced and perfected;
- b. Conducted as an activity/training session where participants are required to demonstrate competency in skills;
- c. Duration (and intensity) of training has increased from the familiarization level;
- d. Participants are introduced to new or different training locations;
- e. Element of risk remains low; and
- f. Support requirements to accomplish activity/training can usually be filled by the LHQ.

Level of Activity – Familiarization

- a. New skills are introduced and practiced as a participatory activity;
- b. Short duration;
- c. Low perceived risk;
- d. Participants and instructors easily forecast results of their actions;
- e. The degree of support in terms of instructors, equipment and expenditure is low;
- f. Activity/training location is easily accessible; and
- g. Participants easily recognize any hazards.

Level of Activity – Intermediate

- a. New technical skills are introduced and perfected;
- b. Extended duration, increased intensity and more removed training location create the challenge for participants;
- c. Perceived risk for the participants is greatly increased and risk management becomes a more important role for the leaders/instructors;
- d. Results of the training are not easily forecast by participants; however all are still confident and feel in control of the situation;
- e. Support requirements normally exceed those that the LHQ can provide; and
- f. The RCSU or D Cdts would generally supply some or all specialized instructors/leaders/equipment and funding.

LHQ

Local Headquarters – the environment of a cadet when not at a Cadet Summer Training Centre; it includes the community and surrounding area as well as the resources available to the Corps within that area.

Liability

The state of being liable. The nature of the cadet movement means that CIC members may be considered liable to civil and military authorities. In some circumstances cadets may be considered liable for their actions/non-actions.

“Minimum-Impact”

This term describes a conscientious method of planning, preparing for, and conducting outdoor training so that it makes as little as possible or no impact on the natural environment; this includes the reduction of impact on wildlife and the enjoyment of the outdoor experience by other persons. **“No-Trace” camping** is a more strict application of minimum impact practices.

GLOSSARY (Cont)

Mountaineering (Ref: Mountaineering Techniques CF Publication)

Anchor Rope. A rope tied to an anchor to secure a belayer.

Balance Climbing. The basic technique of mountain movement generally requiring only the use of hands for balance. Mainly refers to rock climbing without the use of the climbing rope or other specialized aids.

Belaying. To secure or be secured with a rope against a possible fall by a climber.

Bight. A simple turn of rope which does not cross itself.

Chimney. A vertical fissure in rock large enough to accommodate the body of a climber.

Chute. A chute-like crack in rock or terrain caused by erosive action, generally wider than a chimney, vertical or sloping.

Commando Crawl. A method of crawling on top of a rope by laying on the chest with one leg and foot hooked over the rope and letting the other leg hang down pulling with the hands.

Crack. A fissure in rock or ice, varying in size, accommodating a piton, hand, foot or log.

Exposed Climb. A climb from which a fall would be severe or fatal.

Face of Rock. The sheer, unbroken front of a cliff or rock.

Fissure. A crack in rock or ice.

Fixed Rope. A rope or series of ropes installed and secured to aid climbers in overcoming difficult terrain.

Free Climbing. Climbing without a rope or other aids.

Gully. A shallow, narrow ravine caused by erosion.

Half Hitch. A loop, which runs around an anchor or anchor rope so as to lock itself.

Hold. A rock or man-made support ice or snow used by a climber in progressing from one position to another. Method of using such support.

Knot. A fastening made by intertwining or tying together pieces of rope.

Loop. Simple turn of a rope which crosses itself.

Mountaineering. The art of mountain climbing.

Piton. A metal wedge driven in rock or ice used to provide support.

Rappelling. The process whereby a climber lowers himself by sliding down a climbing rope.

Rock Fall. The fall of any quantity of rock on a mountain.

Rope. A strong cord made of intertwisted strands of fibres.

GLOSSARY (Cont)

Mountaineering (Cont)

Scree. Small unconsolidated rocks and gravel (or smaller) located mostly below rock ridges and cliffs.

Scree Slope. Slope covered with scree.

Slab. A relatively smooth portions of rock laying at an angle.

Sound Rock. Firm rock which holds together well. The opposite of rotten rock.

Standing Part. Anchored portion of rope.

Talus. Accumulation rock debris, fallen from dominant rock ridge or face, larger than scree or large blocks, unconsolidated in nature.

Talus Slope. Slope covered with talus.

Tension Climbing. Climbing with the aid of pitons, in which the belayer holds the climber on the rock and assists his progress with tension in the rope (pulley system).

Traversing. Ascending or descending diagonally instead of straight up and down.

Tyrolean Travers. A method used in mountaineering go around obstacles by the use of rope bridge and rappel seat, sometimes pulling with the hands.

Wall. A vertical or near vertical portion of mountain, rock or ice cliff.

Working End. Free end or the end of the rope, which is being worked.

Orienteering (Canadian Orienteering Federation)

Beginners. Individuals who are learning the basic skills.

Beginner or Wayfarers. Recreational.

Class A. Denoting the most advanced class.

Class B or Open. Denoting shorter and/or less technically demanding courses.

Class E. Reserved for special Elite classes.

Types of Orienteering Events

Cross-country Orienteering. Participants visit controls in a specified order. The winner is the participant who completes the course in the shortest elapsed time.

Score Orienteering. Participants score points by finding controls in any order within a specified time. The winner is the participant with the highest point total.

Either of the above types of event may be: night event, relay or team race.

GLOSSARY (Cont)

Orienteering (Cont)

Relay Race. Teams of individuals compete consecutively and are ranked against other teams.

Team Race. A specified number of individual times of team members are added together; ranking is according to these total times.

Wayfarers. Groups of two or more individuals who complete a course together helping one another.

Principal Officials of an Orienteering Meet

The **Meet Director** shall take responsibility for the meet. The Meet Director shall appoint such further officials as are necessary and see that they understand and fulfill their duties.

The **Course Planner** shall design the courses and be responsible for preparing the control markers, punches, competition maps, control description lists and for the correct placing of the control markers and punches prior to the event.

The primary tasks and responsibilities of the **Controller** shall be:

- a. check the quality of the map and to recommend necessary revisions;
- b. check the start and finish areas and all control locations for correct position and suitability;
- c. check that the general standard of the course is in accordance with current rules and standards of course planning;
- d. check that the course as planned is fair to all participants particularly with regard to the quality of map detail;
- e. check that the terrain and course are safe for participants with respect to hazards and dangerous locations.

More extensive description of a controller's functions are given in the "*A Meet Organizing Manual*" and the *Controllers Handbook*.

Overnight Tripping

Usually occurring on public lands (e.g. National or provincial parks) which are some distance from nearest municipality; three hours to 12 hours from assistance. Usually has duration of one to five days (one to three nights).

Paddling (CRCA Manuals, American Canoe Association Instructors Manual, A-CR-CCP-030/PT-001, Watercraft Safety Orders)

Big Water or River. Refers to very big rivers or reasonable size rivers in flood conditions. Typically, river capacity is measured in cubic meters per second (m^3/s) or cubic feet per second (ft^3/s). A river is considered big when it has a greater capacity than $750 \text{ m}^3/\text{s}$ or $25\,000 \text{ ft}^3/\text{s}$.

Canoë. Light open boat propelled by paddle(s).

GLOSSARY (Cont)

Paddling (Cont)

Canoe Training. Training limited to single location from which the class usually moves no more than 30 minutes or 1000 metres from the put-in point.

Canoe Tripping. It is any canoe activity that moves more than 30 min or 1000 m from the put-in point.

Flat Water. Describes paddling conditions in calm, relatively flat water with no noticeable current.

Kayak. Light closed boat propelled by paddle(s).

Lake Water. Describes similar paddling conditions as flat water. Typically, lake water paddling refers to the highly advanced performance of flat water paddling manoeuvres to an aesthetic standard. Lake water is the progression of flat water manoeuvres to choreographed sequences, resulting in canoe ballet or canoe dance.

Moving Water. Refers to any water that has a discernible current typically assessed with the International Scale of River Difficulty (Class 1 to 6).

Ocean, Coastal and Open Water. Refers to paddling conditions in very large bodies of water that would behave like an ocean, e.g. seas, very large bays and very large lakes.

Reasonable Visibility. It is a paddling condition measured by the ability for each paddlers to see the entire group, the lead craft must also be able to see the equivalent distance ahead.

Voyageur Canoës. They vary in size and construction. They are usually much bigger than conventional Canadian canoes and measure at least 6 m in length. Some modern materials are used for performance but traditional materials like wood, bark and canvas are used in historical reproduction. Regardless of the construction, the voyageur canoe is built of a sturdy frame, robust shell.

White Water. It is sometimes used in reference to violent moving water. As a generic term, moving water encompasses white water.

Wilderness Paddling or Wilderness Trips. Describes paddling in a remote, wilderness settings with limited road/rail access, limited communications, difficult evacuation procedures and/or environmentally sensitive areas.

Risk Management

The management of risk factors surrounding an activity to reduce accident potential. The management is done thorough study of, and preparation for, areas of risk involved in training. It also includes constant monitoring of safe conduct of training and immediate response to changing situations. Each CIC officer who conducts adventure training assumes the element of risk involved in the activity and is responsible to manage it reasonably.

“Standard of Care”

The expected level of competency of an outdoor leader, and/or program, when compared to equivalent professional activities.

GLOSSARY (Cont)

Terrain Skills

The skill of safely moving a group across terrain. At the simplest level it would be crossing obstacles, and at the high end it would be mountaineering.

Transportation Skill

A method of non-motorized transport that holds a special and historical significance to a region/zone/LHQ where participation in this training/activity would also have cultural importance. An example could be dog sledding, or voyageur canoeing.

Wilderness Tripping

Often involving some travel, usually significant distance or significant challenge in remote wilderness regions, isolated from well-populated areas; more than 12 hours from support services. Usually has a longer duration than an overnight trip, three to 15 days (two to 14 nights).

Zone

“Zone” is a generic name to describe a division within a region where Army Cadet Corps are associated for purposes of support and/or training. Zones can host training and activities.

EO S226.04 – PARTICIPATE IN A FIVE-DAY EXPEDITION

1. **Performance.** Participate in a Five-Day Expedition.
2. **Conditions**
 - a. Given:
 - (1) Personal equipment, to include:
 - (a) expedition field pack,
 - (b) sleeping bag,
 - (c) waterproof compression sack,
 - (d) air mattress,
 - (e) clothing,
 - (f) rain gear,
 - (g) valise/stuff sack,
 - (h) food,
 - (i) water bottle,
 - (j) re-sealable plastic bags (small and large),
 - (k) garbage bags,
 - (l) carabiner,
 - (m) expedition field pack repair kit, and
 - (n) personal essentials, to include:
 - i. sunscreen,
 - ii. bug repellent,
 - iii. lip balm,
 - iv. camp soap (biodegradable),
 - v. tooth brush,
 - vi. toothpaste,
 - vii. toilet paper, and
 - viii. headlamp/flashlight;
 - (o) mountain bike,
 - (p) helmet,
 - (q) bell or horn,
 - (r) lights and reflectors,

- (s) PFD,
- (t) whistle,
- (u) tether line,
- (v) paddle, and
- (w) pen/pencil;
- (2) Group equipment, to include:
 - (a) tent,
 - (b) single-burner mountain stove,
 - (c) fuel bottle,
 - (d) fuel,
 - (e) pot set,
 - (f) folding saw,
 - (g) water filter,
 - (h) rope,
 - (i) compass,
 - (j) hand-held radio,
 - (k) topographical map or trail map of the area,
 - (l) glow sticks,
 - (m) first-aid kit,
 - (n) knife,
 - (o) reflective vest,
 - (p) bike maintenance tool,
 - (q) tandem canoe, and
 - (r) canoe safety equipment;
- (3) Supervision, and
- (4) Limited assistance as necessary.
- b. Denied: N/A.
- c. Environmental:
 - (1) Field setting,
 - (2) Class One/Two hiking terrain IAW A-CR-CCP-951/PT-002,
 - (3) Novice mountain bike trails IAW A-CR-CCP-951/PT-002 during daylight hours, and

- (4) Flat water IAW A-CR-CCP-030/PT-001 during daylight hours.
- 3. **Standard.** The cadet shall participate in a five-day expedition, to assess:
 - a. PO S222 (Navigate a Route During an Expedition, Section 2),
 - b. PO S226 (Follow Expedition Routine),
 - c. PO S250 (Reflect on Expedition Experiences, Section 5),
 - d. PO S251 (Ride a Mountain Bike During an Expedition, Section 6), and
 - e. PO S252 (Paddle a Canoe on Flat Water During an Expedition, Section 7).
- 4. **Teaching Points.** Using three modes of travel, the cadet will participate in a five-day expedition, to include:
 - a. following expedition routine, while camping overnight for four nights, to include:
 - (1) inspecting campsites; and
 - (2) setting up, tearing down and departing campsites daily;
 - b. logging at least four theme-based entries in the Basic Expedition Journal, during designated evening reflective periods in a quiet place, away from any distraction, for a minimum of 15 minutes;
 - c. navigating as a leader of a group of no more than 10 between two given points;
 - d. trekking a 8–16 km route over one-day;
 - e. riding a mountain bike for 25–35 km over two-days; and
 - f. paddling a canoe for 15–25 km over two-days.
- 5. **Time.** Five consecutive days, 40 periods.
- 6. **Substantiation.** An experiential approach was chosen for this lesson as it allows the cadet to acquire new knowledge and skills, such as mountain biking and paddling, through a direct experience. The cadet experiences an expedition and defines that experience at a personal level. The cadet will be given the opportunity to reflect and examine what they saw, felt and thought while on the expedition, and consider how it related to what they had already learned as well as how it will relate to future experiences.
- 7. **References.** N/A.
- 8. **Training Aids.** As per paragraph 2.
- 9. **Learning Aids.** As per paragraph 2.
- 10. **Test Details.** This EO is the practical assessment opportunity for S221 (Chapter 3, [Annex B](#)), S222 (Chapter 3, [Annex B](#)), S250 (Chapter 3, [Annex B](#)), S251 (Chapter 3, [Annex B](#)) and S252 PCs (Chapter 3, [Annex B](#)).
- 11. **Remarks**
 - a. The adventure activity may be scheduled to form a sixth day of the expedition.
 - b. Within the 40 periods allotted, the cadet should experience a variety of trails and terrain when trekking and mountain biking. Time spent on modes of travel will vary depending on regional resources. The duration and challenge of activities shall be appropriate for a 13–14 year old cadet in good physical condition.

- c. Journal entries shall be completed during evenings in a journal environment that:
 - (1) provides each cadet a minimum of 15 uninterrupted minutes;
 - (2) accounts for those cadets who will require more than 15 minutes to complete an entry (eg, no training to be completed directly after);
 - (3) allows each cadet space to be free from other cadets; and
 - (4) allows each cadet to go wherever they wish (within given set boundaries).
- d. During the expedition safety briefing, cadets should be informed of potential wildlife encounters and preventative actions.
- e. Teachable moments are situations that naturally arise during the course of the day and provide opportunity for discussion. These moments will reinforce the corps program and should be taken advantage of throughout the expedition. Take time to explain and emphasize program material as it arises. Some of these moments could include:
 - (1) navigation,
 - (2) Leave No Trace,
 - (3) foot care,
 - (4) packing and adjusting an expedition pack,
 - (5) basic astronomy,
 - (6) wildlife, and
 - (7) use of equipment, etc.

SECTION 6**PO S251 – RIDE A MOUNTAIN BIKE DURING AN EXPEDITION**

1. **Performance.** Ride a Mountain Bike During an Expedition.
2. **Conditions**
 - a. Given:
 - (1) Mountain bike,
 - (2) Helmet,
 - (3) Supervision, and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Novice mountain bike trails IAW A-CR-CCP-951/PT-002 during daylight hours, during an expedition.
3. **Standard.** The cadet will ride a mountain bike on trails not to exceed Level 3 – Day Trip Off-Road, during an expedition, to include:
 - a. fitting a mountain bike; and
 - b. demonstrating mountain bike skills when riding, to include:
 - (1) shifting gears;
 - (2) braking;
 - (3) gearing;
 - (4) ascending hills; and
 - (5) descending hills.
4. **Remarks.** N/A.

EO S251.01 – DESCRIBE MOUNTAIN BIKE TRAILS

1. **Performance.** Describe Mountain Bike Trails.
2. **Conditions**
 - a. Given:
 - (1) Supervision, and
 - (2) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Classroom or training area large enough to accommodate the entire group.
3. **Standard.** The cadet shall describe mountain bike trails, to include:
 - a. types of trails,
 - b. trail etiquette, and
 - c. trail and road safety.
4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Introduce mountain bike trails, to include: <ol style="list-style-type: none"> a. the International Mountain Bicycling Association trail rating system for mountain bike use, to include: <ol style="list-style-type: none"> (1) novice trails, (2) intermediate trails, and (3) experienced trails; and b. trail types available for mountain biking, to include: <ol style="list-style-type: none"> (1) multi-use trails, (2) single-use mountain bike trails, (3) double track trails, and (4) single track trails. 	Interactive Lecture	10 min	C2-087 (p. 32) C2-090
TP2	Discuss the six codes of conduct that minimize the impact of mountain biking on the environment and on other trail users, to include: <ol style="list-style-type: none"> a. riding on open trails only; b. practicing the principles of Leave No Trace; c. controlling your bicycle; d. giving way to other users; e. avoiding animals; and f. planning ahead. 	Interactive Lecture	10 min	C2-083 (p. 13) C2-087 (p. 31)

TP	Description	Method	Time	Ref
TP3	<p>Discuss the importance of following trail and road safety regulations when mountain biking, to include:</p> <ul style="list-style-type: none"> a. using safety equipment, to include: <ul style="list-style-type: none"> (1) helmet, (2) reflective vest, (3) bell or horn, and (4) light and reflectors; b. adhering to the rules of the road for bikers; c. signalling, to include: <ul style="list-style-type: none"> (1) left, (2) right, and (3) stop; and d. riding discipline, to include: <ul style="list-style-type: none"> (1) formations for riding, (2) spacing, (3) stopping/starting procedures, and (4) road crossing. 	Interactive Lecture	15 min	A2-001 (pp. 8-1 to 8-3) C2-089 C2-092

5. Time

- a. Introduction/Conclusion: 5 min
- b. Interactive Lecture: 35 min
- c. Total: 40 min

6. Substantiation.

An interactive lecture was chosen for this lesson to introduce and give the cadet direction on mountain bike trails, trail etiquette, and safety regulations.

7. References

- a. A2-001 A-CR-CCP-951/PT-002 D Cdts 3. (2006). *Royal Canadian Army Cadets Adventure Training Safety Standards*. Ottawa, ON: Department of National Defence.
- b. C2-083 (ISBN 0-07-149390-5) Brink, T. (2007). *The Complete Mountain Biking Manual*. Camden, ME: Ragged Mountain Press.
- c. C2-087 Badyk, M., Buck, K., Sahl, N., Schultz, R., & Vrooman, D. (1998). *Ontario Learn to Mountain Bike Clinic Workbook* (2nd ed.). Ontario Cycling Association and Ontario Recreational Mountain Bicycling Alliance.
- d. C2-089 Ministry of Transport Ontario. (2007). *Young Cyclists Guide*. Retrieved October 5, 2007, from <http://www.mto.gov.on.ca/english/safety/cycling/youngcyclist.htm>.
- e. C2-090 International Mountain Bicycling Association. (2007). *Trail Difficulty*. Retrieved October 10, 2007, from http://www.imba.com/resources/trail_building/itn_17_4_trail_difficulty.html.

- f. C2-092 Ministry of Transport Ontario. (2007). *Cycling Skills: Cycling Safety for Teen and Adult Cyclists*. Retrieved October 5, 2007, from <http://www.mto.gov.on.ca/english/pubs/cycling/cyclingskills.htm>.

8. **Training Aids**

- a. Presentation aids (eg, whiteboard/flip chart/OHP) appropriate for the classroom/training area,
- b. Mountain bike,
- c. Helmet,
- d. Reflective vest,
- e. Bell or horn, and
- f. Light and reflectors.

9. **Learning Aids.** N/A.

10. **Test Details.** This EO is assessed IAW Chapter 3, [Annex B](#) (Assessment of Learning Plan – Basic Expedition), S251 PC.

11. **Remarks.** N/A.

EO S251.02 – FIT A MOUNTAIN BIKE

1. **Performance.** Fit a Mountain Bike.
2. **Conditions**
 - a. Given:
 - (1) Mountain bike,
 - (2) Helmet,
 - (3) Supervision, and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Outside, during daylight hours.
3. **Standard.** The cadet shall select and fit a mountain bike, to include:
 - a. selecting a bike using size by eye;
 - b. sizing using the stand-over test; and
 - c. adjusting the seat to the correct height.
4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Discuss types of bikes, to include: <ol style="list-style-type: none"> a. road, b. mountain, c. hybrid, and d. touring. 	Interactive Lecture	5 min	C2-095
TP2	Identify parts of the mountain bike, to include: <ol style="list-style-type: none"> a. handlebar, b. gear shifter, c. brake lever, d. stem, e. top tube, f. front fork, g. tire, h. rim, i. spoke, j. hub, k. quick release, l. dropout (front and rear), 	Interactive Lecture	15 min	C2-082 (pp. 356–362) C2-084 (p. 12, p. 13, pp. 234–239) C2-088 (p. 18)

TP	Description	Method	Time	Ref
	m. derailleur (front and rear), n. chainring, o. chainset, p. crank, q. pedal, r. chain, s. chainstay, t. cogs, u. cassette, v. brakes, w. seat tube, x. seat post release, y. seat post, and z. saddle.			
TP3	Demonstrate and have the cadet select and adjust a mountain bike, to include: a. selecting a helmet; b. adjusting the helmet; and c. sizing a mountain bike, to include: (1) size by eye, (2) stand-over test, and (3) saddle adjustment.	Demonstration and Performance	50 min	C2-088 (p. 22, p. 23, p. 32) C2-089

5. Time

a.	Introduction/Conclusion:	10 min
b.	Interactive Lecture:	20 min
c.	Demonstration and Performance:	50 min
d.	Total:	80 min

6. Substantiation

- An interactive lecture was chosen for TPs 1 and 2 to give the cadet an overview of the different types of bikes and present them with general information about the parts of a mountain bike.
- Demonstration and performance was chosen for TP 3 as it allows the instructor to explain and demonstrate selecting and adjusting a mountain bike while providing an opportunity for the cadet to practice the skill under supervision.

7. References

- C2-082 (ISBN 1-57954-883-0) Downs, T. (2005). *Bicycle Maintenance & Repair for Road & Mountain Bikes*. USA: Rodale Inc.

- b. C2-084 (ISBN 1-55297-734-X) Allwood, M. (2004). *Mountain Bike Maintenance: The Illustrated Manual*. Richmond Hill, ON: Firefly Books Ltd.
 - c. C2-088 (ISBN 1-55297-653-X) Crowther, N. (2002). *The Ultimate Mountain Bike Book: The Definitive Illustrated Guide to Bikes, Components, Techniques, Thrills and Trails*. Toronto, ON: Firefly Books Ltd.
 - d. C2-089 Ministry of Transport Ontario. (2007). *Young Cyclists Guide*. Retrieved October 5, 2007, from <http://www.mto.gov.on.ca/english/safety/cycling/youngcyclist.htm>.
 - e. C2-095 The Care Exchange. (2007). *Bikes 101 - Bike types*. Retrieved October 5, 2007, from <http://www.caree.org/bike101biketypes.htm>.
8. **Training Aids**
- a. Presentation aids (eg, whiteboard/flip chart/OHP) appropriate for the classroom/training area,
 - b. Mountain bike,
 - c. Helmet, and
 - d. Gear/masking tape.
9. **Learning Aids**
- a. Mountain bike, and
 - b. Helmet.
10. **Test Details.** This EO is assessed IAW Chapter 3, [Annex B](#) (Assessment of Learning Plan – Basic Expedition), S251 PC.
11. **Remarks.** N/A.

EO S251.03 – PERFORM MOUNTAIN BIKE SKILLS

1. **Performance.** Perform Mountain Bike Skills.
2. **Conditions**
 - a. Given:
 - (1) Mountain bike,
 - (2) Helmet,
 - (3) Water carrier,
 - (4) Supervision, and
 - (5) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Novice trails, IAW A-CR-CCP-951/PT-002 during daylight hours.
3. **Standard.** The cadet shall perform mountain bike skills, to include:
 - a. completing a pre-ride check;
 - b. performing mountain bike techniques, to include:
 - (1) mounting;
 - (2) dismounting;
 - (3) braking;
 - (4) shifting gears;
 - (5) ascending hills; and
 - (6) descending hills; and
 - c. completing a post-ride check.
4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Discuss required personal and group equipment, to include: <ol style="list-style-type: none"> a. clothing, b. liquids, c. snacks, d. identification, e. helmet, and f. map and compass. 	Interactive Lecture	10 min	C2-087 (p. 26)

TP	Description	Method	Time	Ref
TP2	<p>Explain, demonstrate and have the cadet practice the procedure for completing a pre-ride bike check using the ABC Quick Check method, to include:</p> <ul style="list-style-type: none"> a. air, to include: <ul style="list-style-type: none"> (1) tire air pressure, (2) wear on the tread or cuts on the sidewall, (3) true wheels, (4) looseness in the ball bearings in the hub; b. brakes and bars, to include: <ul style="list-style-type: none"> (1) brake levers, (2) brake function, (3) headset, and (4) handlebars; c. chain and crank, to include: <ul style="list-style-type: none"> (1) lubrication, and (2) pedals; d. quick release, to include: <ul style="list-style-type: none"> (1) wheel, and (2) saddle; and e. final check. 	Demonstration and Performance	20 min	C2-088 (p. 36, p. 37) C2-089
TP3	<p>Explain, demonstrate and have the cadet practice mountain bike techniques, to include:</p> <ul style="list-style-type: none"> a. straddle mount, b. braking, and c. straddle dismount. 	Demonstration and Performance	20 min	C2-087 (p. 40, p. 42) C2-088 (p. 104, p. 113) C2-092
TP4	<p>Explain, demonstrate and have the cadet practice the mountain bike technique of gearing, to include:</p> <ul style="list-style-type: none"> a. gear ratio, b. chainset, c. cassette, d. shifting gears, and e. gearing. 	Demonstration and Performance	20 min	C2-087 (p. 40) C2-088 (pp. 106–109) C2-092
TP5	<p>Explain, demonstrate and have the cadet practice mountain bike techniques, to include:</p> <ul style="list-style-type: none"> a. ascending hills, to include: <ul style="list-style-type: none"> (1) position, and 	Demonstration and Performance	25 min	C2-083 (pp. 112–118) C2-087 (p. 42)

TP	Description	Method	Time	Ref
	(2) gearing and shifting; and b. descending hills, to include: (1) position, and (2) gearing and shifting.			
TP6	Explain and demonstrate the procedure for completing a post-ride check, to include: a. cleaning; b. lubricating, to include: (1) chain, (2) cables, and (3) derailleurs; and c. assessing for repairs.	Demonstration	15 min	C2-088 (p. 44, p. 45, p. 52, p. 53)
TP7	Conduct a mountain bike familiarization ride and have the cadet practice: a. pre-ride check, b. mountain bike techniques, c. riding formations, d. communication skills, and e. post-ride check.	Practical Activity	160 min	A2-001 (p. 8-1)

5. Time

a.	Introduction/Conclusion:	10 min
b.	Interactive Lecture:	10 min
c.	Demonstration and Performance:	85 min
d.	Demonstration:	15 min
e.	Practical Activity:	160 min
f.	Total:	280 min

6. Substantiation

- An interactive lecture was chosen for TP 1 to introduce and give the cadet direction on the personal and group equipment required when biking.
- Demonstration and performance was chosen for TPs 2–5 as it allows the instructor to explain and demonstrate the procedures for the pre-ride check as well as proper mountain bike techniques while providing an opportunity for the cadet to practice each skill under supervision.
- Demonstration was chosen for TP 6 as it allows the instructor to explain and demonstrate the procedure for completing a post-ride check.
- A practical activity was chosen for TP 7 as it is an interactive way to introduce the cadet to mountain bike techniques and procedures. This activity contributes to the development of these skills and procedures through a fun and exciting familiarization ride.

7. References

- a. A2-001 A-CR-CCP-951/PT-002 D Cdts 3. (2006). *Royal Canadian Army Cadets Adventure Training Safety Standards*. Ottawa, ON: Department of National Defence.
- b. C2-083 (ISBN 0-07-149390-5) Brink, T. (2007). *The Complete Mountain Biking Manual*. Camden, ME: Ragged Mountain Press.
- c. C2-087 Badyk, M., Buck, K., Sahl, N., Schultz, R., & Vrooman, D. (1998). *Ontario Learn to Mountain Bike Clinic Workbook* (2nd ed.). Ontario Cycling Association and Ontario Recreational Mountain Bicycling Alliance.
- d. C2-088 (ISBN 1-55297-653-X) Crowther, N. (2002). *The Ultimate Mountain Bike Book: The Definitive Illustrated Guide to Bikes, Components, Techniques, Thrills and Trails*. Toronto, ON: Firefly Books Ltd.
- e. C2-089 Ministry of Transport Ontario. (2007). *Young Cyclists Guide*. Retrieved October 5, 2007, from <http://www.mto.gov.on.ca/english/safety/cycling/youngcyclist.htm>.
- f. C2-092 Ministry of Transport Ontario. (2007). *Cycling Skills: Cycling Safety for Teen and Adult Cyclists*. Retrieved October 5, 2007, from <http://www.mto.gov.on.ca/english/pubs/cycling/cyclingskills.htm>.

8. Training Aids

- a. Mountain bike,
- b. Helmet,
- c. Bell or horn,
- d. Light and reflectors,
- e. Map of area,
- f. Compass,
- g. Reflective vest,
- h. Water carrier,
- i. Bike tire pump,
- j. Bike maintenance tool,
- k. Lubricant,
- l. Hand brush,
- m. Cleaning cloth,
- n. Sponge,
- o. Small brush (toothbrush),
- p. Stiff brush,
- q. Dish soap,
- r. Bucket, and

- s. Pre- and post-ride checklist.

9. **Learning Aids**

- a. Mountain bike,
- b. Helmet,
- c. Bell or horn,
- d. Light and reflectors,
- e. Lubricant,
- f. Hand brush,
- g. Cleaning cloth,
- h. Sponge,
- i. Small brush (toothbrush),
- j. Stiff brush,
- k. Dish soap,
- l. Bucket, and
- m. Pre- and post-ride checklist.

10. **Test Details.** This EO is assessed IAW Chapter 3, [Annex B](#) (Assessment of Learning Plan – Basic Expedition), S251 PC.

11. **Remarks**

- a. IAW A-CR-CCP-951/PT-002, the following equipment is required for the familiarization ride:
 - (1) reflective vest (worn by the person in rear of group),
 - (2) map of area (if unfamiliar),
 - (3) compass,
 - (4) first aid kit,
 - (5) communication device, cellular phone or hand-held radio, and
 - (6) basic repair kit.
- b. This EO shall be conducted during the three-day expedition.

PO S251 (MOUNTAIN BIKE) PC ASSESSMENT INSTRUCTIONS

PREPARATION

PRE-ASSESSMENT INSTRUCTIONS

Review the assessment plan, assessment instructions and assessment checklist and become familiar with the material prior to conducting the assessment.

Obtain all resources required for the assessment.

PRE-ASSESSMENT ASSIGNMENT

Have the cadet review the assessment activity instructions and the assessment checklist to become familiar with the material prior to participating in the assessment.

ASSESSMENT METHOD

Performance assessment was chosen to observe the cadets perform the required skills and make a judgement on the quality of the performance.

CONDUCT OF ASSESSMENT

PURPOSE

The purpose of this PC is to assess the cadet's ability to ride a mountain bike during an expedition.

RESOURCES

- PO S251 Assessment Checklist,
- Mountain bike, and
- Helmet.

ASSESSMENT ACTIVITY LAYOUT

The assessment will be conducted in the field during the five-day expedition on novice mountain bike trails IAW A-CR-CCP-951/PT-002 during daylight hours.

ASSESSMENT ACTIVITY INSTRUCTIONS



The cadets may be provided assistance (eg, reminders, guided questions).



After observing each task being performed, make a judgement and indicate (with a check mark in the applicable box) on the assessment checklist whether the task was:

- **Incomplete.** The task was not attempted or not completed even with assistance.
- **Completed With Difficulty.** The task was completed with some difficulty/assistance.
- **Completed Without Difficulty.** The task was completed without major difficulty/assistance.

Make notes of observations for the purposes of providing post-assessment descriptive feedback.



To ensure a safe environment, cadets shall be afforded only two safety-related warnings during the bike phase of the five-day expedition, on the third warning they shall be assessed as incomplete on the PO and a note shall be made in the feedback section. Warnings shall be issued for **significant** failure to adhere to the safety principles taught in the EO. When a warning is given, the instructor shall clearly identify what the cadet has done incorrectly, what steps they need to take to correct the error, and what action they should take in the future to avoid the error.

1. Have the cadet select and fit a mountain bike.
2. Have the cadet mount a mountain bike.
3. Tell the cadet to shift to a specific gear.
4. Detail a location for the cadet to stop a mountain bike by braking.
5. Have the cadet apply biking techniques to ascend a hill.
6. Have the cadet apply biking techniques to descend a hill.

POST-ASSESSMENT INSTRUCTIONS

RECORDING ASSESSMENT RESULTS

Indicate the overall performance assessment on the assessment checklist as:

- **Incomplete.** The cadet has not achieved the performance standard by not completing at least one of the required areas.
- **Completed With Difficulty.** The cadet has achieved the performance standard by completing one or more of the required objectives with difficulty.
- **Completed Without Difficulty.** The cadet has achieved the performance standard by completing all objectives without difficulty.

Record notes made in the assessor's feedback section of the assessment checklist.

Sign and date the assessment checklist. Indicate the level of performance on the Basic Expedition Qualification Record, located in [Annex C](#).

PROVIDING ASSESSMENT FEEDBACK

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

**PO S251 (MOUNTAIN BIKE)
PC ASSESSMENT CHECKLIST**

Cadet's Name: _____

Platoon: _____

Analytical Performance Assessment:

Ride a Mountain Bike During an Expedition	Assessment		
	Incomplete	Completed With Difficulty	Completed Without Difficulty
The cadet selected and fit a mountain bike.			
The cadet mounted a mountain bike using proper technique.			
The cadet dismounted a mountain bike using proper technique.			
The cadet correctly shifted to a gear selected by the evaluator.			
The cadet correctly applied front and rear braking, allowing them to stop at a point indicated by the evaluator.			
The cadet ascended a hill using proper technique.			
The cadet descended a hill using proper technique.			

Assessor's Feedback:

Overall Performance Assessment:

Overall (Check one)	PO Assessment					
	Incomplete		Completed With Difficulty		Completed Without Difficulty	
	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.	

Assessor's Name: _____

Position: _____

Assessor's Signature: _____

Date: _____

This form shall be reproduced locally.

SECTION 7
PO S351 – REPAIR A MOUNTAIN BIKE

1. **Performance.** Repair a Mountain Bike.
2. **Conditions**
 - a. Given:
 - (1) Mountain bike,
 - (2) Mountain bike repair kit,
 - (3) Supervision, and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Training area large enough to accommodate the entire group.
3. **Standard.** The cadet will perform basic mountain bike repairs, to include:
 - a. splitting and rejoining a chain;
 - b. adjusting a mechanical disc brake by:
 - (1) regulating the tension in the brake cable; and
 - (2) repositioning the stationary brake pad;
 - c. adjusting the rear and front derailleurs, to include:
 - (1) adjusting the high and low limit screws; and
 - (2) tensioning the gear cable; and
 - d. repairing a flat tire, in a group of three, by:
 - (1) removing the tire from the rim;
 - (2) patching or replacing the tube; and
 - (3) replacing the tire on the rim.
4. **Remarks.** The mountain bike repair kit will include:
 - a. spare tube,
 - b. tube patch kit,
 - c. tire levers,
 - d. bike multi-tool, to include:
 - (1) 2-, 2.5-, 3-, 4-, 5-, 6- and 8-mm hex keys,
 - (2) chain tool,
 - (3) flat-head screwdriver,

- (4) Phillips screwdriver,
 - (5) T-25 Torx spoke key,
 - (6) spoke wrenches, and
 - (7) 8- and 10-mm open wrenches; and
- e. mini pump with gauge.

EO S351.01 – REPAIR A DAMAGED CHAIN

1. **Performance.** Repair a Damaged Chain.
2. **Conditions**
 - a. Given:
 - (1) Mountain bike,
 - (2) Mountain bike repair kit,
 - (3) Link of a chain,
 - (4) Cleaning cloth,
 - (5) Cassette scraper,
 - (6) Chain-cleaning box,
 - (7) Degreaser,
 - (8) Lubricant,
 - (9) Rubber gloves,
 - (10) Large brush,
 - (11) Small brush,
 - (12) Bucket,
 - (13) Water,
 - (14) Soap,
 - (15) Supervision, and
 - (16) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Outside training area large enough to accommodate the entire group, during daylight hours.
3. **Standard.** The cadet shall:
 - a. clean a chain; and
 - b. repair a chain by:
 - (1) splitting as required; and
 - (2) rejoining.

4. Teaching Points

TP	Description	Method	Time	Ref
TP1	Identify the parts of a mountain bike, to include: <ol style="list-style-type: none"> handlebar, gear shifter, brake lever, top tube, tire, quick release, derailleur (front and rear), chainring, chainset, pedal, chain, chainstay, cogs, cassette, brakes, seat tube, seat post release, seat post, and saddle. 	Interactive Lecture	5 min	C2-082 (pp. 356–362) C2-084 (pp. 12–13, pp. 234–239) C2-088 (p. 18)
TP2	Identify the components of a mountain bike repair kit, to include: <ol style="list-style-type: none"> spare tube, tube patch kit, to include: <ol style="list-style-type: none"> patches, glue, and sandpaper; tire levers, bike multi-tool, to include: <ol style="list-style-type: none"> 2-, 2.5-, 3-, 4-, 5-, 6- and 8-mm hex (Allen) keys, chain tool, flat-head screwdriver, Phillips screwdriver, T-25 Torx spoke key, spoke wrenches, and 	Interactive Lecture	5 min	C2-082 (p. 7)

TP	Description	Method	Time	Ref
	(7) 8- and 10-mm open wrenches; and e. mini pump with gauge.			
TP3	Identify the parts of a link in a mountain bike chain, to include: a. side plates, b. rollers, and c. rivets.	Interactive Lecture	5 min	C2-082 (p. 164) C2-084 (p. 94)
TP4	Discuss why chains break, to include: a. wear and tear, b. dirt, and c. improper maintenance.	Interactive Lecture	5 min	C2-082 (pp. 166–168) C2-083 (p. 78) C2-084 (p. 102)
TP5	Explain, demonstrate and have the cadet clean a chain, to include: a. dipping a small brush into degreaser; b. scrubbing the rear cassette and the front chainring with the brush soaked in degreaser; c. pouring degreaser into the reservoir of the chain-cleaning box; d. snapping the chain-cleaning box over the lower portion of the chain; e. turning the pedal so it moves slowly backwards and moves the chain through the chain-cleaning box completely at least three times; f. unclipping the chain-cleaning box; g. scraping and brushing the grease and gunk out of the rear cassette and front chainring using the cassette scraper and large and small brushes; h. washing the rear cassette, front chainrings, chain and jockey wheels with warm, soapy water; i. rinsing the rear cassette, front chainrings, chain and jockey wheels with clean water; j. drying the rear cassette, front chainrings, chain and jockey wheels with a clean cloth; and k. lubricating the chain by placing a small drop of lubricant on each roller.	Demonstration and Performance	20 min	C2-082 (pp. 170–171) C2-083 (pp. 72–73) C2-084 (pp. 95–96) C2-088 (pp. 44–45)

TP	Description	Method	Time	Ref
TP6	<p>Explain, demonstrate and have the cadet:</p> <p>a. split the chain, to include:</p> <ol style="list-style-type: none"> (1) locating the link which has to be removed; (2) laying the chain on the chain tool, so it sits in the furthest away position; (3) turning the handle of the chain tool clockwise until the pin lines up with the centre of the chain rivet; (4) continuing to rotate the chain tool handle, pushing the rivet until it rests on the far outer plate; (5) taking the chain off the chain tool; (6) flexing the chain to free the inner segment from the rivet; (7) separating the chain; and (8) repeating the process two rivets down in order to remove one complete link; and <p>b. rejoin the chain, to include:</p> <ol style="list-style-type: none"> (1) turning the chain so that the rivet at the wide end faces towards the body of the individual completing the repair; (2) feeding the chain through the drive shaft, placing the chain on the smallest sprocket on the rear cassette and dropping it into the gap between the chainset and the frame at the front to give enough slack to rejoin the chain; (3) easing the two ends of the chain together by flexing the chain so that the inner segment can slide past the stub of the rivet sticking through to the inside of the outer plate; (4) laying the chain on the chain tool so it sits in the furthest away position; (5) turning the handle of the chain tool clockwise, pushing the rivet into the chain until there is an even amount of rivet showing on both sides of the chain; (6) removing the tool by turning the handle counter-clockwise; 	Demonstration and Performance	30 min	C2-084 (pp. 32–33)

TP	Description	Method	Time	Ref
	(7) bending the chain to ensure the link is not stiff; and			
	(8) replacing the chain onto the chainring.			

5. Time

- | | | |
|----|--------------------------------|--------|
| a. | Introduction/Conclusion: | 10 min |
| b. | Interactive Lecture: | 20 min |
| c. | Demonstration and Performance: | 50 min |
| d. | Total: | 80 min |

6. Substantiation

- An interactive lecture was chosen for TPs 1–4 to orient the cadet to components of a mountain bike repair kit and introduce them to the components of a chain and the reasons that they break.
- A demonstration and performance was chosen for TPs 5 and 6 as it allows the instructor to explain and demonstrate cleaning, splitting and rejoining a chain while providing the cadet the opportunity to practice these skills under supervision.

7. References

- C2-082 (ISBN 1-57954-883-0) Downs, T. (2005). *Bicycle Maintenance & Repair for Road & Mountain Bikes*. USA: Rodale Inc.
- C2-083 (ISBN 978-0-07-149390-1) Brink, T. (2007). *The Complete Mountain Biking Manual*. Camden, ME: Ragged Mountain Press.
- C2-084 (ISBN 1-55297-734-X) Allwood, M. (2004). *Mountain Bike Maintenance: The Illustrated Manual*. Richmond Hill, ON: Firefly Books Ltd.
- C2-088 (ISBN 1-55297-653-X) Crowther, N. (2002). *The Ultimate Mountain Bike Book: The Definitive Illustrated Guide to Bikes, Components, Techniques, Thrills and Trails*. Toronto, ON: Firefly Books Ltd.

8. Training Aids

- Presentation aids (eg, whiteboard/flip chart/OHP) appropriate for the classroom/training area,
- Mountain bike,
- Mountain bike repair kit,
- Mountain bike repair aide-mémoire card,
- Bike stand,
- Cleaning cloth,
- Lubricant,
- Chain-cleaning box,
- De-greaser,

- j. Cassette scraper,
- k. Rubber gloves,
- l. Large brush,
- m. Small brush,
- n. Bucket,
- o. Water, and
- p. Soap.

9. **Learning Aids**

- a. Mountain bike,
- b. Mountain bike repair kit,
- c. Mountain bike repair aide-mémoire card,
- d. Cleaning cloth,
- e. Lubricant,
- f. Chain-cleaning box,
- g. De-greaser,
- h. Cassette scraper,
- i. Rubber gloves,
- j. Large brush,
- k. Small brush,
- l. Bucket,
- m. Water, and
- n. Soap.

10. **Test Details.** This lesson is assessed IAW S351 PC (Chapter 3, [Annex B](#), [Appendix 4](#)).

11. **Remarks.** N/A.

EO S351.02 – ADJUST BRAKES

1. **Performance.** Adjust Brakes.
2. **Conditions**
 - a. Given:
 - (1) Mountain bike,
 - (2) Bike multi-tool,
 - (3) Supervision, and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Outside training area large enough to accommodate the entire group, during daylight hours.
3. **Standard.** The cadet shall adjust a mechanical disc brake by:
 - a. regulating the tension in the brake cable; and
 - b. repositioning the stationary brake pad.
4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Identify the components of a V-brake system, to include: <ol style="list-style-type: none"> a. brake lever, to include: <ol style="list-style-type: none"> (1) barrel-adjuster, and (2) lockring; b. brake cable, c. V-brake, to include: <ol style="list-style-type: none"> (1) noodle, (2) hanger, (3) gaiter, (4) cable clamp bolt, (5) brake units (arms), (6) brake blocks (pads), (7) brake block (pad) adjusting unit, and (8) balance screw; and d. tire rim. 	Interactive Lecture	5 min	C2-084 (pp. 50–57) C2-088 (pp. 50–51)

TP	Description	Method	Time	Ref
TP2	<p>Explain and demonstrate how the components of a V-brake system work together to slow down/stop the mountain bike:</p> <ol style="list-style-type: none"> The mountain biker pulls the brake lever. The pulling of the brake lever tensions the brake cable. The tensioning of the brake cable pivots the brake units. The pivoting brake units push the brake blocks onto the tire rim. The pushing brake blocks slow down/stop the mountain bike by applying pressure and thereby causing friction between the tire rim and the brake block. 	Demonstration	5 min	C2-088 (pp. 50–51)
TP3	<p>Explain and demonstrate adjusting a V-brake, to include:</p> <ol style="list-style-type: none"> repositioning the brake block(s); regulating the right and left brake blocks using the balance screws; and regulating tension in the brake cable using the: <ol style="list-style-type: none"> barrel-adjusters, and/or cable clamp bolt. 	Demonstration	10 min	C2-084 (pp. 52–55, p. 57)
TP4	<p>Identify the components of a mechanical disc brake system, to include:</p> <ol style="list-style-type: none"> brake lever, to include: <ol style="list-style-type: none"> barrel-adjuster, and lockring; brake cable, caliper, to include: <ol style="list-style-type: none"> barrel-adjuster, lockring, cable clamp bolt, and actuation lever; and rotor. 	Interactive Lecture	5 min	C2-084 (pp. 68–77)
TP5	<p>Explain and demonstrate how the components of a mechanical disc brake system work together to slow down/stop a mountain bike:</p> <ol style="list-style-type: none"> The mountain biker pulls the brake lever. 	Demonstration	10 min	C2-084 (pp. 68–77)

TP	Description	Method	Time	Ref
	<ul style="list-style-type: none"> b. The pulling of the brake lever tensions the brake cable. c. The tensioning of the brake cable pulls the actuation lever. d. The pulling of the actuation lever twists the piston inside the caliper. e. The twisting of the piston inside the caliper pushes the outer brake pad towards the rotor. f. The pushing of the outer brake pad on the rotor bends the rotor slightly so that it in turn is pushed against the inner (stationary) brake pad. g. The pushing of both the outer and inner (stationary) brake pads traps the rotor and thereby stops/slows down the mountain bike. h. The mountain biker releases the brake lever. 			
TP6	<p>Explain, demonstrate and have the cadet adjust a mechanical disc brake, to include:</p> <ul style="list-style-type: none"> a. regulating the tension in the brake cable using: <ul style="list-style-type: none"> (1) the barrel-adjusters, and/or (2) the cable clamp bolt; and b. repositioning the inner (stationary) brake pad. 	Demonstration and Performance	35 min	C2-084 (pp. 78–79)

5. **Time**

a.	Introduction:	10 min
b.	Interactive Lecture:	10 min
c.	Demonstration:	25 min
d.	Demonstration and Performance:	35 min
e.	Total:	80 min

6. **Substantiation**

- a. An interactive lecture was chosen for TPs 1 and 4 to familiarize cadets with the components of the V-brake and the mechanical disc brake system.
- b. A demonstration was chosen for TPs 2, 3 and 5 as it allows the instructor to explain and demonstrate to the cadets how the components of the mechanical disc brake and V-brake system work to slow down/stop a mountain bike and how to adjust a V-brake system.

- c. A demonstration and performance was chosen for TP 6 as it allows the instructor to explain and demonstrate adjusting a mechanical disc brake while providing an opportunity for the cadet to practice the skill under supervision.

7. **References**

- a. C2-084 (ISBN 1-55297-734-X) Allwood, M. (2004). *Mountain Bike Maintenance: The Illustrated Manual*. Richmond Hill, ON: Firefly Books Ltd.
- b. C2-088 (ISBN 1-55297-653-X) Crowther, N. (2002). *The Ultimate Mountain Bike Book: The Definitive Illustrated Guide to Bikes, Components, Techniques, Thrills and Trails*. Toronto, ON: Firefly Books Ltd.

8. **Training Aids**

- a. Presentation aids (eg, whiteboard/flip chart/OHP) appropriate for the classroom/training area,
- b. Mountain bike equipped with a mechanical disc brake system,
- c. Mountain bike equipped with a V-brake disc system,
- d. Bike multi-tool, and
- e. Bike stand.

9. **Learning Aids**

- a. Mountain bike equipped with a mechanical disc brake system,
- b. Bike multi-tool, and
- c. Bike stand.

10. **Test Details.** This lesson is assessed IAW S351 PC (Chapter 3, [Annex B](#), [Appendix 4](#)).

11. **Remarks.** Cadets will be required to complete adjustments on a mechanical disc brake system. If that type of brake system is unavailable, more focus should be spent during the lesson on the adjustment of the V-brake system.

EO S351.03 – ADJUST DERAILLEURS

1. **Performance.** Adjust Derailleurs.
2. **Conditions**
 - a. Given:
 - (1) Mountain bike,
 - (2) Mountain bike repair kit,
 - (3) Supervision, and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Outside training area large enough to accommodate the entire group, during daylight hours.
3. **Standard.** The cadet shall adjust rear and front derailleurs by:
 - a. adjusting the high and low limit screws; and
 - b. tensioning the gear cable.
4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Identify the components of the front and rear derailleur systems, to include: <ol style="list-style-type: none"> a. gear shifter, b. gear cable and casing, c. cable clamp bolt, d. barrel-adjuster, e. limit screws, f. chainring, g. cog, h. front derailleur, to include front derailleur cage, and i. rear derailleur, to include: <ol style="list-style-type: none"> (1) rear derailleur cage, (2) guide jockey wheel, and (3) tension jockey wheel. 	Interactive Lecture	10 min	C2-082 (p. 194–221) C2-084 (p. 108–112, pp. 115–119) C2-223 C2-224
TP2	Explain and demonstrate how the components of the front and rear derailleur systems operate to change the gears on a mountain bike.	Demonstration	10 min	C2-084 (pp. 108–112, pp. 115–119)

TP	Description	Method	Time	Ref
TP3	Explain, demonstrate and have the cadet adjust the front and rear derailleur, to include: a. adjusting the high and low limit screws on the: (1) front derailleur, and (2) rear derailleur; and b. tensioning the gear cable on the: (1) front derailleur, and (2) rear derailleur.	Demonstration and Performance	50 min	C2-082 (pp. 194–221) C2-083 (p. 81) C2-084 (pp. 108–109, pp. 115–119) C2-223 C2-224

5. Time

a.	Introduction:	10 min
b.	Interactive Lecture:	10 min
c.	Demonstration:	10 min
d.	Demonstration and Performance:	50 min
e.	Total:	80 min

6. Substantiation

- An interactive lecture was chosen for TP 1 to familiarize the cadet with the components of the front and rear derailleur systems.
- A demonstration was chosen for TP 2 as it allows the instructor to explain and demonstrate to the cadet how the components of the front and rear derailleur work to change the gears on a mountain bike.
- A demonstration and performance was chosen for TP 3 as it allows the instructor to explain and demonstrate adjusting the front and rear derailleur while providing an opportunity for the cadet to practice both skills under supervision.

7. References

- C2-082 (ISBN 1-57954-883-0) Downs, T. (2005). *Bicycle Maintenance & Repair for Road & Mountain Bikes*. USA: Rodale Inc.
- C2-083 (ISBN 978-0-07-149390-1) Brink, T. (2007). *The Complete Mountain Biking Manual*. Camden, ME: Ragged Mountain Press.
- C2-084 (ISBN 1-55297-734-X) Allwood, M. (2004). *Mountain Bike Maintenance: The Illustrated Manual*. Richmond Hill, ON: Firefly Books Ltd.
- C2-223 Park Tool. (2008). *Repair How-To's: Front Derailleur Adjustment*. Retrieved November 30, 2008, from <http://www.parktool.com/repair/readhowto.asp?id=75>.
- C2-224 Park Tool. (2008). *Repair How-To's: Rear Derailleur Adjustment*. Retrieved November 30, 2008, from <http://www.parktool.com/repair/readhowto.asp?id=64>.

8. Training Aids

- Presentation aids (eg, whiteboard/flip chart/OHP) appropriate for the classroom/training area,

- b. Mountain bike,
 - c. Mountain bike repair kit, and
 - d. Bike stand.
9. **Learning Aids**
- a. Mountain bike, and
 - b. Mountain bike repair kit.
10. **Test Details.** This lesson is assessed IAW S351 PC (Chapter 3, [Annex B](#), [Appendix 4](#)).
11. **Remarks.** N/A.

EO S351.04 – REPAIR A FLAT TIRE

1. **Performance.** Repair a Flat Tire.
2. **Conditions**
 - a. Given:
 - (1) Mountain bike,
 - (2) Mountain bike repair kit,
 - (3) Supervision, and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Outside training area large enough to accommodate the entire group, during daylight hours.
3. **Standard.** The cadet, in a group of three, shall repair a flat tire by:
 - a. removing the tire from the rim;
 - b. patching or replacing the tube; and
 - c. replacing the tire on the rim.
4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Identify the parts of a wheel, to include: <ol style="list-style-type: none"> a. tire, b. tire bead, c. inner tube, d. rim, e. rim strip, f. rim edge, g. spoke nipple, h. spoke, i. valve, and j. valve hole. 	Interactive Lecture	10 min	C2-082 (p. 48, p. 58)
TP2	Explain, demonstrate and have the cadets, in groups of three, repair a flat tire, to include: <ol style="list-style-type: none"> a. releasing the brake cable by: <ol style="list-style-type: none"> (1) squeezing the brake units together; (2) pulling the noodle gently but firmly away from the cable clamp bolt; 	Demonstration and Performance	60 min	C2-082 (pp. 56–60) C2-084 (pp. 26–29) C2-088 (pp. 48–51)

TP	Description	Method	Time	Ref
	<ul style="list-style-type: none"> (3) releasing the noodle from the hanger; and (4) lifting the noodle up and away, allowing the brake units to fall to either side; b. removing: <ul style="list-style-type: none"> (1) the front wheel, and/or (2) the rear wheel; c. expelling the air from the inner tube by standing the wheel upright on the ground, pushing down and massaging the air out; d. levering the tire from the rim by: <ul style="list-style-type: none"> (1) pinching the tire all the way around to help loosen it from the rim; (2) inserting the tire lever between the rim edge and the tire bead in line with a spoke; (3) flipping one side of the tire bead onto the outside of the rim edge; (4) clipping the tire lever onto the spoke using the hook on the opposite end to lock it into place; and (5) repeating Steps 2–4 every two spokes until one of the tire beads is completely free from the rim; e. pulling the inner tube out of the tire; f. locating the source of the hole in the tire by running a cloth around the inside of the tire, feeling for a sharp object protruding into the tire; g. removing the sharp object from the tire, if required; h. locating the puncture in the inner tube by: <ul style="list-style-type: none"> (1) pumping the inner tube to medium pressure; (2) squeezing the inner tube gently and passing it slowly over an individual's wrist/lips/ear to feel for where the air is escaping; (3) placing the inner tube in water to look for bubbles; and (4) marking the puncture location with a pen; i. patching the puncture in the inner tube by: 			

TP	Description	Method	Time	Ref
	<ul style="list-style-type: none"> (1) selecting/cutting a patch into a circle that is 1 cm (1/2 inch) larger than the puncture; (2) roughing up the area around the puncture with sandpaper; (3) brushing away rubber dust; (4) applying adhesive to the area around the puncture; (5) allowing the adhesive to begin to dry until it loses its sheen; (6) placing the patch firmly on the inner tube; (7) allowing the patch to completely dry (approximately 5 min); and (8) pumping the inner tube to medium pressure to check for any further leakages; 			
	<p>j. installing the patched/new inner tube, to include:</p> <ul style="list-style-type: none"> (1) pumping the inner tube with just enough air to give it shape; (2) pulling back the section of the tire over the valve hole; (3) popping the valve through the valve hole; and (4) starting at the valve stem, working the inner tube into the tire so it is completely tucked in; 			
	<p>k. placing the tire back onto the rim by:</p> <ul style="list-style-type: none"> (1) holding the wheel on the individual's lap; (2) placing the hands on either side of the valve stem with the fingers over the back and the thumbs in the front; (3) working the hands away from each other to pop the tire bead onto the rim by pushing the tire with the thumbs/heels of the hand; and (4) working both sides of the tire bead from side to side to make sure that the tube is not caught under the tire bead; 			
	<p>l. inflating the tire to 35–65 psi;</p>			
	<p>m. replacing:</p>			

TP	Description	Method	Time	Ref
	(1) the front wheel, and/or (2) the rear wheel; and n. reattaching the brake cable by: (1) squeezing the brake units firmly together; and (2) easing the end of the noodle back onto the hanger.			

5. **Time**

- | | | |
|----|--------------------------------|--------|
| a. | Introduction: | 10 min |
| b. | Interactive Lecture: | 10 min |
| c. | Demonstration and Performance: | 60 min |
| d. | Total: | 80 min |

6. **Substantiation**

- An interactive lecture was chosen for TP 1 to introduce the cadet to the parts of a wheel.
- A demonstration and performance was chosen for TP 2 as it allows the instructor to explain and demonstrate repairing a flat tire while providing an opportunity for the cadet to practice the skill under supervision.

7. **References**

- C2-082 (ISBN 1-57954-883-0) Downs, T. (2005). *Bicycle Maintenance & Repair for Road & Mountain Bikes*. USA: Rodale Inc.
- C2-084 (ISBN 1-55297-734-X) Allwood, M. (2004). *Mountain Bike Maintenance: The Illustrated Manual*. Richmond Hill, ON: Firefly Books Ltd.
- C2-088 (ISBN 1-55297-653-X) Crowther, N. (2002). *The Ultimate Mountain Bike Book: The Definitive Illustrated Guide to Bikes, Components, Techniques, Thrills and Trails*. Toronto, ON: Firefly Books Ltd.

8. **Training Aids**

- Presentation aids (eg, whiteboard/flip chart/OHP) appropriate for the classroom/training area,
- Mountain bike,
- Mountain bike repair kit, and
- Bike stand.

9. **Learning Aids**

- Mountain bike, and
- Mountain bike repair kit.

10. **Test Details.** This lesson is assessed IAW S351 PC (Chapter 3, [Annex B](#), [Appendix 4](#)).

11. **Remarks.** N/A.

S351 PC – ASSESSMENT INSTRUCTIONS

PREPARATION

PRE-ASSESSMENT INSTRUCTIONS

Review the assessment plan, assessment instructions and S351 PC Assessment Checklist and become familiar with the material prior to conducting the assessment.

Photocopy the S351 PC Assessment Checklist.

Obtain all resources required for the assessment.

PRE-ASSESSMENT ASSIGNMENT

Have the cadet review the assessment activity instructions and the S351 Assessment Checklist to become familiar with the material prior to participating in the assessment.

ASSESSMENT METHOD

Performance assessment was chosen to observe the cadets perform the required skills to repair a mountain bike and make a judgment on the quality of the performance.

CONDUCT OF ASSESSMENT

PURPOSE

The purpose of this PC is to assess the cadet's ability to repair a mountain bike.

RESOURCES

- S351 PC Assessment Checklist,
- Fully equipped mountain bike,
- Mountain bike repair kit,
- Mountain bike repair aide-mémoire card,
- Cleaning cloth,
- Cassette scraper,
- Chain-cleaning box,
- Degreaser,
- Lubricant,
- Rubber gloves,
- Large brush,
- Small brush,
- Bucket,
- Water, and
- Soap.

ASSESSMENT ACTIVITY LAYOUT

This assessment will be conducted:

- during EO S351.01 (Repair a Damaged Chain, Chapter 4, Section 7),
- during EO S351.02 (Adjust Brakes, Chapter 4, Section 7),
- during EO S351.03 (Adjust Derailleurs, Chapter 4, Section 7),
- during EO S351.04 (Repair a Flat Tire, Chapter 4, Section 7), and
- when mountain biking on trails IAW A-CR-CCP-951/PT-002 during daylight hours.

ASSESSMENT ACTIVITY INSTRUCTIONS



The cadet may be provided assistance (eg, reminders, guided questions).



The cadet may use the mountain bike repair aide-mémoire card located in EO S351.01 (Repair a Damaged Chain, Chapter 4, Section 7), throughout this assessment.



After observing each skill being performed, make a judgment and indicate (with a check mark in the applicable box) on the Assessment Checklist whether the skill was:

- **Incomplete.** The skill was not attempted or not completed even with assistance;
- **Completed With Difficulty.** The skill was completed with some difficulty/assistance;
- **Completed Without Difficulty.** The skill was completed without difficulty/assistance; or
- **Exceeded Standard.** The skill was completed with enhanced proficiency, in a quick manner, without error, without assistance from the aide-mémoire card and without difficulty.

Make notes of observations for the purposes of providing descriptive post-assessment feedback.

1. Have the cadet repair a mountain bike.
2. Assess the cadet's performance for each skill and record the results on the Assessment Checklist. This assessment is very subjective. The feedback section of each assessment should be used to provide assessment details to the cadet.
3. There will be many opportunities for the cadets to complete these skills. Cadets may be given unlimited re-tests within the resources of the CSTC to meet the standard for each skill. Where time permits, cadets may re-test to improve their results.

POST ASSESSMENT INSTRUCTIONS

RECORDING ASSESSMENT RESULTS

1. Indicate the overall performance assessment on the Assessment Checklist as:
 - a. **Incomplete.** The cadet has not achieved the performance standard by not completing at least one of the required skills;
 - b. **Completed With Difficulty.** The cadet has achieved the performance standard by completing one or more of the required objectives with difficulty;
 - c. **Completed Without Difficulty.** The cadet has achieved the performance standard by completing all objectives without difficulty; or
 - d. **Exceeded Standard.** The cadet has exceeded the performance standard by exceeding the standard on all objectives.
2. Record notes made 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 Expedition Instructor Qualification Record located at [Annex C](#).

PROVIDING ASSESSMENT FEEDBACK

Discuss the overall performance results with the cadet and provide them with a copy of the completed Assessment Checklist.

Analytical Performance Assessment:

Chain Repair	Incomplete	Completed
Split a chain.		
Rejoin a chain.		

Assessor's Feedback:

Check One	Incomplete		Completed With Difficulty		Completed Without Difficulty		Exceeded Standard	
Overall Performance	The cadet did not repair a chain or did not attempt, even with assistance.		The cadet repaired a chain with some difficulty/assistance.		The cadet repaired a chain, without difficulty/assistance.		The cadet repaired a chain in a timely manner, without error, without assistance from the aide-mémoire card and without difficulty.	

This form shall be reproduced locally.

Adjust a Mechanical Disc Brake	Incomplete	Completed
Check/regulate the tension in the brake cable using the barrel-adjusters.		
Check/regulate the tension in the brake cable using the cable clamp bolt.		
Check/reposition the inner (stationary) pad.		

Assessor's Feedback:

Check One	Incomplete	Completed With Difficulty	Completed Without Difficulty	Exceeded Standard
Overall Performance	The cadet did not adjust a mechanical disc brake or did not attempt, even with assistance.	The cadet adjusted a mechanical disc brake with some difficulty/assistance.	The cadet adjusted a mechanical disc brake without difficulty/assistance.	The cadet adjusted a mechanical disc brake in a timely manner, without error, without assistance from the aide-mémoire card and without difficulty.

This form shall be reproduced locally.

Adjust Derailleurs	Incomplete	Completed
Check/adjust the high and low limit screws.		
Check/tension the gear cable.		

Assessor's Feedback:

Check One	Incomplete	Completed With Difficulty	Completed Without Difficulty	Exceeded Standard
Overall Performance	The cadet did not adjust derailleurs or did not attempt, even with assistance.	The cadet adjusted derailleurs, with some difficulty/assistance.	The cadet adjusted derailleurs, without difficulty/assistance.	The cadet adjusted derailleurs in a timely manner, without error, without assistance from the aide-mémoire card and without difficulty.

This form shall be reproduced locally.

Repair a Flat Tire	Incomplete	Completed
Remove the tire from the rim.		
Patch or replace the tube.		
Replace the tire on the rim.		

Assessor's Feedback:

Check One	Incomplete	Completed With Difficulty	Completed Without Difficulty	Exceeded Standard
Overall Performance	The cadet did not repair a flat tire or did not attempt, even with assistance.	The cadet repaired a flat tire with some difficulty/assistance.	The cadet repaired a flat tire without difficulty/assistance.	The cadet repaired a flat tire in a timely manner, without error, without assistance from the aide-mémoire card and without difficulty.

This form shall be reproduced locally.

Assessor's Overall Feedback:

Overall Performance Assessment:

PO S351 Overall Assessment							
Check One	Incomplete		Completed With Difficulty		Completed Without Difficulty		Exceeded Standard
Overall Performance	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.		The cadet has achieved the performance standard by exceeding the standard on all objectives.

Assessor's Name:	Position:
Assessor's Signature:	Date:

This form shall be reproduced locally.

SECTION 8**PO S352 – RIDE A MOUNTAIN BIKE ON INTERMEDIATE TRAILS**

1. **Performance.** Ride a Mountain Bike on Intermediate Trails.
2. **Conditions**
 - a. Given:
 - (1) Fully equipped mountain bike,
 - (2) Helmet,
 - (3) Whistle,
 - (4) Supervision, and
 - (5) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Intermediate mountain bike trails IAW A-CR-CCP-951/PT-002 during daylight hours.
3. **Standard.** The cadet will ride a mountain bike on intermediate trails, performing a minimum of three of the following advanced mountain bike skills:
 - a. log hops,
 - b. wheelies,
 - c. bunny hops,
 - d. track stands, and
 - e. cornering.
4. **Remarks.** IAW A-CR-CCP-951/PT-002:
 - a. a fully equipped mountain bike is described as having the following:
 - (1) bell or horn,
 - (2) lights, and
 - (3) reflectors; and
 - b. the following group equipment is required when riding a mountain bike:
 - (1) reflective vest (worn by person in rear of group),
 - (2) topographical/trail map of area as required,
 - (3) compass,
 - (4) first aid kit,
 - (5) communication device (eg, cellular phone or hand-held radio),
 - (6) global positioning system receiver, and

- (7) mountain bike repair kit, to include:
 - (a) spare tube,
 - (b) tube patch kit,
 - (c) tire levers,
 - (d) bike multi-tool, to include:
 - i. 2-, 2.5-, 3-, 4-, 5-, 6- and 8-mm hex keys,
 - ii. chain tool,
 - iii. flat screwdriver,
 - iv. Phillips screwdriver,
 - v. T-25 Torx spoke key,
 - vi. spoke wrenches, and
 - vii. 8- and 10-mm open wrenches; and
 - (e) mini pump with gauge.
- c. Ensure that cadets are wearing a day pack and have an ample amount of water when mountain biking.
- d. Cadets who have previously completed mountain biking training by completing Basic Expedition qualification, PO S251 (Ride a Mountain Bike During an Expedition, A-CR-CCP-715/PG-001, Chapter 4, Section 6) and/or Silver Star qualification, EO M326.02B (Ride a Mountain Bike, A-CR-CCP-703/PG-001, Chapter 4, Section 18), may have their skill level assessed prior to the scheduled mountain biking training. Where these cadets demonstrate efficient skills, they may be exempt from EO S352.01 (Practice Mountain Bike Skills) and given more time for practicing mountain biking skills on familiarization trails.

EO S352.01 – PRACTICE MOUNTAIN BIKE SKILLS

1. **Performance.** Practice Mountain Bike Skills.
2. **Conditions**
 - a. Given:
 - (1) Fully equipped mountain bike,
 - (2) Helmet,
 - (3) Supervision, and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Familiarization mountain bike trails IAW A-CR-CCP-951/PT-002 during daylight hours.
3. **Standard.** The cadet shall practice mountain bike skills, to include:
 - a. selecting and adjusting a helmet;
 - b. selecting and adjusting a mountain bike;
 - c. adhering to safety precautions when mountain biking; and
 - d. demonstrating mountain bike skills, to include:
 - (1) braking;
 - (2) shifting gears;
 - (3) ascending hills; and
 - (4) descending hills.
4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Explain, demonstrate and have the cadet select and adjust a mountain bike by: <ol style="list-style-type: none"> a. selecting a helmet; b. adjusting the helmet; and c. selecting a mountain bike by: <ol style="list-style-type: none"> (1) sizing by eye; (2) completing the stand-over test; and (3) adjusting the saddle. 	Demonstration and Performance	15 min	C2-088 (pp. 22–23, p. 32) C2-089
TP2	Explain, demonstrate and have the cadet practice the procedure for completing a pre-ride bike check using the ABC Quick Check method, to include:	Demonstration and Performance	10 min	C2-088 (pp. 22–23, p. 32) C2-089

TP	Description	Method	Time	Ref
	a. air, to include: <ul style="list-style-type: none"> (1) tire pressure, and (2) wear on the tread or cuts on side walls; b. brakes, to include: <ul style="list-style-type: none"> (1) brake levers, and (2) brake function; c. chain and crank, to include: <ul style="list-style-type: none"> (1) lubrication, and (2) pedals; d. quick release, to include: <ul style="list-style-type: none"> (1) wheel, and (2) saddle; and e. final check.			
TP3	Explain and demonstrate safety precautions that must be adhered to when mountain biking, to include: <ul style="list-style-type: none"> a. the rules of the road for bikers; b. signalling, to include: <ul style="list-style-type: none"> (1) left, (2) right, and (3) stop; and c. riding discipline, to include: <ul style="list-style-type: none"> (1) formations for riding, (2) spacing, (3) stopping/starting procedures, and (4) road crossing. 	Demonstration	5 min	A2-001 (pp. 8-1 to 8-3) C2-089 C2-090
TP4	Explain, demonstrate and have the cadet practice mountain bike skills, to include: <ul style="list-style-type: none"> a. braking; b. shifting gears; c. ascending hills; and d. descending hills. 	Demonstration and Performance	30 min	C2-087 (p. 40, p. 42) C2-088 (p. 104–113) C2-092
TP5	Have the cadet practice mountain bike skills.	Practical Activity	45 min	
TP6	Explain, demonstrate and have the cadet complete a post-ride check, to include: <ul style="list-style-type: none"> a. cleaning; and 	Demonstration and Performance	5 min	C2-088 (pp. 44–45, pp. 52–53)

TP	Description	Method	Time	Ref
	b. assessing for repairs.			

5. Time

a.	Introduction/Conclusion:	10 min
b.	Demonstration and Performance:	60 min
c.	Demonstration:	5 min
d.	Practical Activity:	45 min
e.	Total:	120 min

6. Substantiation

- A demonstration and performance was chosen for TPs 1, 2, 4 and 6 as it allows the instructor to explain and demonstrate selecting and adjusting a mountain bike, the procedure for a pre-ride and post-ride check, and proper mountain biking skills while providing an opportunity for the cadet to practice each skill under supervision.
- A demonstration was chosen for TP 3 as it allows the instructor to explain and demonstrate safety precautions when mountain biking.
- A practical activity was chosen for TP 5 as it is an interactive way to introduce the cadet to mountain bike skills and procedures in a controlled environment in a fun and exciting manner.

7. References

- A2-001 A-CR-CCP-951/PT-002 Director Cadets 3. (2006). *Royal Canadian Army Cadets Adventure Training Safety Standards*. Ottawa, ON: Department of Nation Defence.
- C2-087 Badyk, M., Buck, K., Sahl, N., Schultz, R., & Vrooman, D. (1998). *Ontario Learn to Mountain Bike Clinic Workbook* (2nd ed.). North York, ON: Ontario Cycling Association and Ontario Recreational Mountain Bicycling Alliance.
- C2-088 (ISBN 1-55297-653-X) Crowther, N. (2002). *The Ultimate Mountain Bike Book: The Definitive Illustrated Guide to Bikes, Components, Techniques, Thrills and Trails*. Toronto, ON: Firefly Books Ltd.
- C2-089 Ministry of Transport Ontario. (2007). *Young Cyclists Guide*. Retrieved October 5, 2007, from <http://www.mto.gov.on.ca/english/safety/cycling/youngcyclist.htm>.
- C2-090 International Mountain Bicycling Association. (2007). *Trail Difficulty*. Retrieved October 10, 2007, from http://www.imba.com/resources/trail_building/itn_17_4_trail_difficulty.html.
- C2-092 Ministry of Transport Ontario. (2007). *Cycling Skills: Cycling Safety for Teen and Adult Cyclists*. Retrieved October 5, 2007, from <http://www.mto.gov.on.ca/english/pubs/cycling/cyclingskills.htm>.

8. Training Aids

- Presentation aids (eg, whiteboard/flip chart/OHP) appropriate for the classroom/training area,
- Fully equipped mountain bike,
- Mountain bike repair kit,

- d. Helmet,
- e. Day pack,
- f. Water carrier,
- g. Mountain bike group equipment,
- h. Lubricant, and
- i. Gear/masking tape.

9. **Learning Aids**

- a. Fully equipped mountain bike,
- b. Mountain bike repair kit,
- c. Helmet,
- d. Day pack, and
- e. Water carrier.

10. **Test Details.** This EO is assessed IAW S352 PC (Chapter 3, [Annex B](#), [Appendix 5](#)).

11. **Remarks**

- a. Cadets may have already received mountain bike training prior to this course. Consider the various skill levels of the cadets and adjust training times as required.
- b. This EO shall be conducted during the three-day expedition.
- c. Ensure that cadets are wearing a day pack and have an ample amount of water when mountain biking.

EO S352.02 – PERFORM ADVANCED MOUNTAIN BIKE SKILLS

1. **Performance.** Perform Advanced Mountain Bike Skills.
2. **Conditions**
 - a. Given:
 - (1) Fully equipped mountain bike,
 - (2) Helmet,
 - (3) Supervision, and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Intermediate mountain bike trails IAW A-CR-CCP-951/PT-002 during daylight hours.
3. **Standard.** The cadet shall:
 - a. identify types of obstacles;
 - b. ride a mountain bike on different types of terrain; and
 - c. participate in advanced mountain bike skills, to include:
 - (1) log hops,
 - (2) wheelies,
 - (3) bunny hops,
 - (4) track stands, and
 - (5) cornering.
4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Discuss mountain biking on intermediate trails, to include: <ol style="list-style-type: none"> a. defining intermediate trails; b. adopting the appropriate body position; c. regulating speed, to include: <ol style="list-style-type: none"> (1) braking; and (2) gearing; and d. maintaining control. 	Interactive Lecture	10 min	A2-001 C2-083 (pp. 110–111) C2-087 (pp. 43–45) C2-088 (pp. 134–137)

TP	Description	Method	Time	Ref
TP2	<p>Have the cadets brainstorm different types of terrain and obstacles that may be encountered when mountain biking on intermediate trails, to include:</p> <p>a. terrain, to include:</p> <ul style="list-style-type: none"> (1) grass, (2) mud, (3) sand, (4) water, and (5) gravel; and <p>b. obstacles, to include:</p> <ul style="list-style-type: none"> (1) rocks, (2) roots, (3) logs, (4) ruts, (5) crevices, and (6) potholes. 	Group Discussion	10 min	<p>C2-083 (pp. 110–111)</p> <p>C2-087 (pp. 43–45)</p> <p>C2-088 (pp. 134–137)</p>
TP3	<p>Discuss mountain biking on different types of terrain, to include:</p> <p>a. grass,</p> <p>b. mud,</p> <p>c. sand,</p> <p>d. water, and</p> <p>e. gravel.</p>	Interactive Lecture	10 min	<p>C2-083 (pp. 110–111)</p> <p>C2-087 (pp. 43–45)</p> <p>C2-088 (pp. 134–137)</p>
TP4	<p>Conduct an activity in which the cadet will perform advanced mountain bike skills, to include:</p> <p>a. log hops,</p> <p>b. wheelies,</p> <p>c. bunny hops,</p> <p>d. track stands, and</p> <p>e. cornering.</p>	Practical Activity	110 min	<p>C2-083 (pp. 106–109, pp. 124–125)</p> <p>C2-087 (pp. 43–46)</p> <p>C2-088 (pp. 114–117)</p>
TP5	<p>Conduct a mountain bike training ride, on an intermediate trail, where the cadet, in a group of no more than eight, will practice:</p> <p>a. mountain biking on the following types of terrain, as available:</p> <ul style="list-style-type: none"> (1) grass, (2) mud, 	Practical Activity	50 min	

TP	Description	Method	Time	Ref
	(3) sand, (4) water, and (5) gravel; and b. advanced mountain bike skills, to include: (1) log hops, (2) wheelies, (3) bunny hops, (4) track stands, and (5) cornering.			

5. Time

a.	Introduction/Conclusion:	10 min
b.	Interactive Lecture:	20 min
c.	Group Discussion:	10 min
d.	Practical Activity:	160 min
e.	Total:	200 min

6. Substantiation

- a. An interactive lecture was chosen for TPs 1 and 3 to introduce the cadet to mountain biking on intermediate trails, the different terrain and obstacles they may encounter when mountain biking on intermediate terrain and the ways to travel over different types of terrain.
- b. A group discussion was chosen for TP 2 as it allows the cadet to interact with their peers and share their knowledge and experiences about types of terrain and obstacles that may be encountered when mountain biking on intermediate trails. This helps develop a rapport by allowing the instructor to evaluate the cadet's responses in a non-threatening way while helping them refine their ideas. A group discussion also helps the cadet improve their listening skills and develop as a member of a team.
- c. A practical activity was chosen for TPs 4 and 5 as it is an interactive way for the cadets to learn and practice advanced mountain bike skills in a safe, controlled environment. These activities contribute to the development of mountain bike skills in a fun and challenging setting.

7. References

- a. A2-001 A-CR-CCP-951/PT-002 Director Cadets 3. (2006). *Royal Canadian Army Cadets Adventure Training Safety Standards*. Ottawa, ON: Department of National Defence.
- b. C2-083 (ISBN 0-07-149390-5) Brink, T. (2007). *The Complete Mountain Biking Manual*. Camden, ME: Ragged Mountain Press.
- c. C2-087 Badyk, M., Buck, K., Sahl, N., Schultz, R., & Vrooman, D. (1998). *Ontario Learn to Mountain Bike Clinic Workbook* (2nd ed.). North York, ON: Ontario Cycling Association and Ontario Recreational Mountain Bicycling Alliance.

- d. C2-088 (ISBN 1-55297-653-X) Crowther, N. (2002). *The Ultimate Mountain Bike Book: The Definitive Illustrated Guide to Bikes, Components, Techniques, Thrills and Trails*. Toronto, ON: Firefly Books Ltd.

8. Training Aids

- a. Presentation aids (eg, whiteboard/flip chart/OHP) appropriate for the classroom/training area,
- b. Fully equipped mountain bike,
- c. Helmet,
- d. Day pack,
- e. Water carrier,
- f. Mountain bike group equipment,
- g. Whistle,
- h. 2 inch by 4 inch pieces of wood at least 1 m (3 feet) long,
- i. Logs (10–15 cm [4–6 inches] in diameter, at least 1 m [3 feet] long),
- j. Logs (40–50 cm [15–20 inches] in diameter, between 20–30 cm [8–12 inches] long),
- k. Three flat rocks (at least 40–50 cm [15–20 inches] in diameter, no higher than 5 cm [2 inches]),
- l. Pylons,
- m. Three 2-m lengths of mine tape,
- n. Six tent pegs, and
- o. Advanced mountain bike skill station cards.

9. Learning Aids

- a. Fully equipped mountain bike,
- b. Helmet,
- c. Day pack,
- d. Water carrier,
- e. 2 inch by 4 inch pieces of wood at least 1 m (3 feet) long,
- f. Logs (10–15 cm [4–6 inches] in diameter, at least 1 m [3 feet] long),
- g. Logs (40–50 cm [15–20 inches] in diameter, between 20–30 cm [8–12 inches] long),
- h. Three flat rocks (at least 40–50 cm [15–20 inches] in diameter, no higher than 5 cm [2 inches]),
- i. Pylons,
- j. Three 2-m lengths of mine tape,
- k. Six tent pegs, and
- l. Advanced mountain bike skill station cards.

10. **Test Details.** This EO is assessed IAW S352 PC (Chapter 3, [Annex B](#), [Appendix 5](#)).

11. **Remarks**

- a. Ensure that cadets are wearing a day pack and have an ample amount of water when mountain biking.
- b. This EO shall be conducted during the three-day expedition.
- c. Assistant instructors are required to act as spotters for this lesson.

EO S355.04D – RIDE A MOUNTAIN BIKE ON INTERMEDIATE TRAILS DURING AN 18-DAY EXPEDITION

1. **Performance.** Ride a Mountain Bike on Intermediate Trails During an 18-Day Expedition.
2. **Conditions**
 - a. Given:
 - (1) Fully equipped mountain bike,
 - (2) Helmet,
 - (3) Supervision, and
 - (4) Assistance as required.
 - b. Denied: N/A.
 - c. Environmental: Intermediate mountain bike trails IAW A-CR-CCP-951/PT-002 during daylight hours.
3. **Standard.** The cadet shall ride a mountain bike on intermediate trails during an 18-day expedition.
4. **Teaching Points**
 - a. Brief the cadets prior to the start of the activity, to include an explanation of:
 - (1) the objectives and importance of the activity;
 - (2) the resources that may be required to perform the activity; and
 - (3) any safety guidelines that must be followed while performing the activity.
 - b. Have the cadet ride a mountain bike on intermediate trails, on a linear route, as part of the 18-day expedition.
 - c. Debrief the cadets, ideally by the specialist who was involved in the activity by asking:
 - (1) how they felt about the activity;
 - (2) what they felt they accomplished; and
 - (3) what they would try to improve on if given the chance to complete the activity again.
5. **Time.** Regionally directed, as a portion of the 18-day expedition.
6. **Substantiation.** The experiential approach was chosen for this activity as it allows the cadets to acquire new knowledge and skills through a direct experience. The cadet experiences mountain biking on intermediate trails during an expedition and defines that experience on a personal level. The cadet will be given the opportunity to reflect on and examine what they saw, felt and thought while mountain biking and consider how it relates to what they already learned and experienced as well as how it will relate to further experiences.
7. **References.** A2-001 A-CR-CCP-951/PT-002 Director Cadets 3. (2006). *Royal Canadian Army Cadets Adventure Training Safety Standards*. Ottawa, ON: Department of National Defence.
8. **Training Aids**
 - a. Fully equipped mountain bike, and

- b. Helmet.
- 9. **Learning Aids**
 - a. Fully equipped mountain bike, and
 - b. Helmet.
- 10. **Test Details.** N/A.
- 11. **Remarks**
 - a. A minimum of three modes of travel of the 18-day expedition are to be selected from EO S355.04A (Paddle a Canoe on Flatwater During an 18-Day Expedition), EO S355.04B (Paddle a Voyageur Canoe on Flatwater During an 18-Day Expedition), EO S355.04C (Paddle a Canoe on Moving Water During an 18-Day Expedition), EO S355.04D (Ride a Mountain Bike on Intermediate Trails During an 18-Day Expedition) and EO S355.04E (Hike on Class 3 Terrain During an 18-Day Expedition).
 - b. IAW A-CR-CCP-951/PT-002:
 - (1) a fully equipped mountain bike is described as having the following:
 - (a) bell or horn,
 - (b) lights, and
 - (c) reflectors; and
 - (2) the following group equipment is required when riding a mountain bike:
 - (a) reflective vest (worn by person in rear of group),
 - (b) map of area (if required),
 - (c) compass,
 - (d) first aid kit,
 - (e) communication device (eg, cellular phone or hand-held radio), and
 - (f) mountain bike repair kit.
 - c. The intensity level of the activity shall follow that progression matrix outlined in A-CR-CCP-951/PT-002.
 - d. There will be no instructional guide provided for this EO. If required, instructional information can be located in PO S352 (Ride a Mountain Bike on Intermediate Trails, Chapter 4, [Section 8](#)).
 - e. Ensure the cadet is wearing a day pack and have a supply of water when riding.