ROYAL CANADIAN ARMY CADETS

RED STAR

INSTRUCTIONAL GUIDE

SECTION 2

EO M221.02 – IDENTIFY SECTION EQUIPMENT

Total Time: 60 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-702/PG-001, Chapter 4. Specific uses for said resources are identified throughout the Instructional Guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

All items listed in each TP should be available when instructing this lesson. It is understood that some items will be unavailable due to local resource limitations.

Prepare a first aid kit for demonstration. Ensure it is fully equipped IAW A-CR-CCP-951/PT-002, *Royal Canadian Army Cadets Adventure Training Standards*.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for this lesson to identify section equipment, introduce a new subject and to present the different types of equipment available when participating in a weekend bivouac FTX.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall be expected to identify section equipment.

IMPORTANCE

It is important for cadets to know what equipment is available when going on a weekend bivouac FTX. Having knowledge of the equipment available and its uses allows cadets to prepare for a weekend bivouac FTX. The items selected can be tailored to meet the objective of the weekend bivouac FTX.

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.

Teaching point 1 **Identify Types of Stoves and Lanterns**

Time: 15 min Method: Interactive Lecture



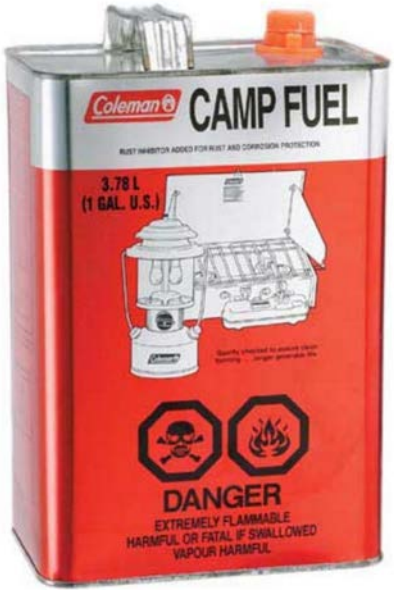
This TP is intended to give an overview of the different equipment available when selecting equipment for camping and trekking/hiking.

Provide cadets with an example of each item. Allow cadets to see the equipment up close and handle it carefully.

TYPES OF FUEL BURNING SYSTEMS

The options of available camping and trekking/hiking equipment are vast and vary depending on the manufacturer. There are three basic types of fuel burning systems, which are based on what they burn – liquid fuel, compressed gas and solid fuel.

Liquid Fuel. Liquid fuel stoves burn white gas—kerosene, alcohol or naphtha. They are the best choice for extremely cold conditions and high altitudes. The fuel is stored in a separate tank. In most cases, this tank uses a pump to help pressurize it. The tank should be filled only to the 3/4 point, leaving some air in the tank. Kerosene, alcohol or naphtha are cleaner fuels that leave little residue when burned.



Canadian Tire, Copyright 1997-2007 by Canadian Tire Corporation Limited. Retrieved 24 April 2007, from =1408474396672290&PRODUCT%3C%3Eprd_id=845524443280741&bmUID=1177356005717&assortment=primary&fromSearch=true Naphtha Fuel HYPERLINK "http://www.canadiantire.ca/browse/product_dei"

Figure 1 Coleman Naphtha Fuel

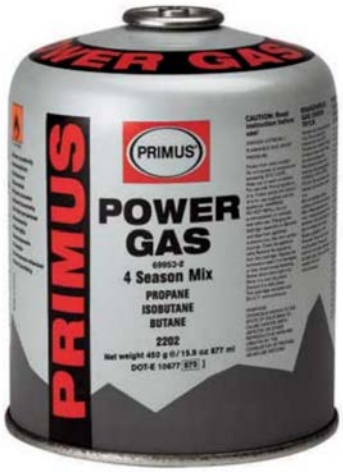
Compressed Gas. Compressed gas stoves burn butane, isobutene or propane. They are easy to turn on and off and require little maintenance. The heat produced is controlled easily and both the fuel and fuel canister are lighter than liquid fuel stoves. Compressed gas stoves do not work very well in cold temperatures. It is difficult to determine the amount of fuel remaining after use because the fuel is stored in a solid vessel.

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.



Canadian Tire, Copyright 1997-2007 by Canadian Tire Corporation Limited. Retrieved 24 April 2007, fromhttp://www.canadiantire.ca/browse/product_detail.jsp?FOLDER%3C%3Efolder_id=1408474396672290&bmUID=1178201728250&PRODUCT%3C%3Eprd_id=845524443280741&assortment=primary&fromSearch=true

Figure 2 Compressed Gas

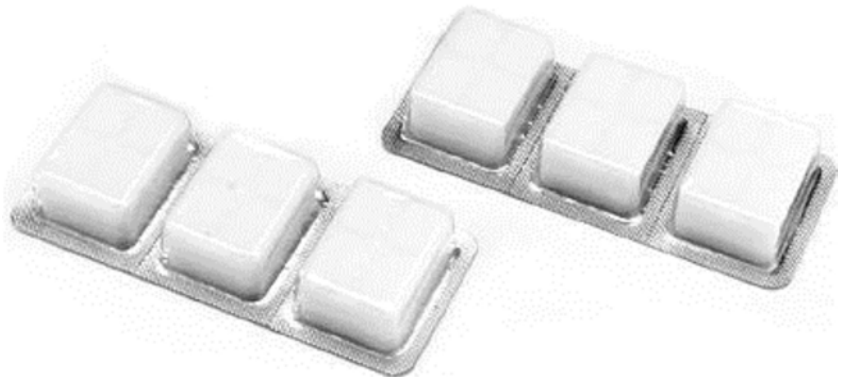


Mountain Equipment Coop, Copyright 2007 by Mountain Equipment Coop. Retrieved 24 April 2007, fromhttp://www.mec.ca/Products/product_detail.jsp?PRODUCT%3C%3Eprd_id=845524441775741&FOLDER%3C%3Efolder_id=2534374302696497&BMUID=1178201628346

Figure 3 Compressed Gas

Solid Fuel. Solid fuel burns flammable pellets, cubes or wood. These systems are simple and easy to use. Regulating temperature is hard at times as they commonly only burn what is added to them. There is little to no maintenance required on these stoves.

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.



Backpackgear Online.com, Copyright 2007 by Maguire and Johnson Web Services. Retrieved 28 March 2007, from http://www.mjsecure.com/backpackgearonline/product_info.php?cPath=27&products_id=330&osCsid=dc36e4f96e5105dacd461c37f0788f17

Figure 4 Esbit Stove Fuel

CAMPING STOVES

Single-burner. Single-burner stoves are portable stoves that allow one to cook anywhere without having to make a fire. These stoves store easily and can be carried along a trek with ease. Fuel is carried in a separate container to ensure there is no spillage of fuel in the pack.



Backpackgear Online.com, Copyright 2007 by Maguire and Johnson Web Services. Retrieved 28 March 2007, from http://www.coleman.com/coleman/colemancom/detail.asp?product_id=533B705&categoryid=2020

Figure 5 Single-burner Coleman Stove

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.



Mountain Equipment Coop, Copyright 2007 by Mountain Equipment Coop. Retrieved 24 April 2007, from http://www.mec.ca/Products/product_detail.jsp?PRODUCT%3C%3Eprd_id=845524441772275&FOLDER%3C%3Efolder_id=2534374302696497&bmUID=1175178016804

Figure 6 Single-burner MSR Stove

Two-burner. The two-burner stove is an efficient item that is particularly suited for the field. When travelling in groups, this stove can be carried in a supply vehicle or on a toboggan. This stove is equipped with two burners which can help speed up the cooking process.



Coleman Outdoor Company, Copyright 2006 by The Coleman Company, Inc. Retrieved 28 March 2007, from http://www.coleman.com/coleman/colemancom/detail.asp?product_id=425G499&categoryid=70023

Figure 7 Coleman Powerhouse Naphtha Two-burner Stove

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.



Coleman Outdoor Company, Copyright 2006 by The Coleman Company, Inc. Retrieved 28 March 2007, from http://www.coleman.com/coleman/colemancom/detail.asp?product_id=5466A700&categoryid=70022

Figure 8 Coleman Two-burner Propane Stove

LANTERNS

Lanterns are designed to produce light. Each type of lantern will produce different amounts of light and last for many hours.

Single-mantle. Single-mantle lanterns which burn naphtha are clean. They can produce a dim, soft light and can burn bright like a beacon when required. The flame is adjustable and fuel consumption can range. This depends on the model type and light setting.

Dual-mantle. Dual-mantle lanterns burn naphtha. They produce more light than a single-mantle lantern. A soft light/glow can be produced and it is capable of burning bright like a beacon when required. The flame is adjustable and fuel consumption can range depending on the model type and light setting.

Battery-powered. Battery-powered lanterns provide a light that radiates from a centre bulb. The lantern has reflective surfaces above and below the light – reflecting light upward and outward. Bulbs and batteries are easily replaceable. These lanterns will run approximately 4 hours or more depending on model type.

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.



Coleman Outdoor Company, Copyright 2006 by The Coleman Company, Inc. Retrieved 28 March 2007, from http://www.coleman.com/coleman/colemancom/detail.asp?product_id=288B700&categoryid=1015

Figure 9 Single-mantle Naphtha Lantern



Coleman Outdoor Company, Copyright 2006 by The Coleman Company, Inc. Retrieved 28 March 2007, from http://www.coleman.com/coleman/colemancom/detail.asp?product_id=288B700&categoryid=1015

Figure 10 Dual-mantle Naphtha Lantern

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.



Coleman Outdoor Company, Copyright 2006 by The Coleman Company, Inc. Retrieved 28 March 2007, from http://www.coleman.com/coleman/colemancom/detail.asp?product_id=5315J725&categoryid=1045

Figure 11 Mini Pack-away Battery Lantern

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

Q1. What are the three types of fuel burning systems?

Q2. What types of lanterns are there?

Q3. What type(s) of fuel is used by a white gas system?

ANTICIPATED ANSWERS

A1. Liquid, compressed and solid.

A2. Single-mantle, dual-mantle, and battery-powered.

A3. Kerosene, alcohol or naphtha.

Teaching point 2 **Identify Types of Field Tools**

Time: 10 min Method: Interactive Lecture



This TP is intended to give an overview of the different equipment available when selecting equipment for camping and trekking/hiking.

Provide cadets with an example of each item. Allow cadets to see the equipment up close and handle it carefully.

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.

SINGLE-BIT AXE

The single-bit axe has a sharp, fully polished, tempered steel head. The axe handle inserts into the axe head also know as the single-bit. The axe requires very little maintenance—only sharpening when the blade is dull and occasionally adding a few drops of oil to prevent rusting. This tool may be used for cutting or splitting wood.



D Cdts 3, 2007, Ottawa, ON: Department of National Defence

Figure 12 Single-bit Axe

BOW SAW

The bow saw is a metal-framed saw in the shape of a bow with a coarse wide blade. It is mostly used for cutting trees and branches. The blade is toothed and suspended between two long narrow handles called “cheeks”.



D Cdts 3, 2007, Ottawa, ON: Department of National Defence

Figure 13 Bow Saw

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS

Q1. What is a single-bit axe used for?

Q2. What is the head of an axe made of?

Q3. What is a bow saw and why is it used?

ANTICIPATED ANSWERS

A1. A single-bit axe is a tool that is used for cutting or splitting wood.

A2. The axe head is made of tempered steel.

A3. The bow saw is a metal-framed saw in the shape of a bow with a coarse wide blade. It is mostly used for cutting trees and branches.

Teaching point 3 **Identify Liquid Storage Vessels**

Time: 10 min Method: Interactive Lecture



This TP is intended to give an overview of the different equipment available when selecting equipment for camping and trekking/hiking.

Provide cadets with an example of each item. Allow cadets to see the equipment up close and handle it carefully.

STOVE AND LANTERN FUEL VESSELS



Mountain Equipment Coop, Copyright 2007 by Mountain Equipment Coop. Retrieved 28 March 2007, fromhttp://www.mec.ca/Products/product_detail.jsp?PRODUC%3C%3Eprd_id=845524441772275&FOLDER%3C%3Efolder_id=2534374302696497&bmUID=1175178016804

Figure 14 Fuel Container

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.



Mountain Equipment Coop, Copyright 2007 by Mountain Equipment Coop. Retrieved 28 March 2007, fromhttp://www.mec.ca/Products/product_detail.jsp?FOLDER%3C%3Efolder_id=2534374302696497&PRODUCT%3C%3Eprd_id=845524442413091&bmUID=1175621430159

Figure 15 Fuel Container



Mountain Equipment Coop, Copyright 2007 by Mountain Equipment Coop. Retrieved 28 March 2007, fromhttp://www.mec.ca/Products/product_detail.jsp;jsessionid=GSTxtlCM69T22xGcCGVwLn2T2Y83jV2cYHTJTXFlRlsGXMdYq0LC!-384445592?FOLDER%3C%3Efolder_id=2534374302696497&PRODUCT%3C%3Eprd_id=845524441776153&bmUID=1175621361170

Figure 16 Fuel Container

Fuel containers for backpacking are either plastic or aluminium. Aluminium containers are usually a cylindrical aluminium bottle. Once a container is used for a particular type of fuel it should not be used for another fuel, as the substances may combine and deteriorate the container.

Plastic bottles are usually red in colour and are coated with a fluoropolymer inner coating that resists both gasoline and alcohol. Plastic fuel bottles should never be used as a tank for a stove or be pressurized with a pump.

WATER CONTAINER/CARRIER

Carrying water for a short day hike is usually no problem—one only requires a lightweight water bottle with a tight lid. When camping, a larger storage container is required.

Water Bottle. A water bottle may be used for any type of hike. Versatile equipment benefits the user. Choose bottles that can withstand the temperatures of freezing cold or boiling hot liquids.

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.



D Cdts 3, 2007, Ottawa, ON: Department of National Defence

Figure 17 Water Canteen



Mountain Equipment Coop, Copyright 2007 by Mountain Equipment Coop. Retrieved 28 March 2007, from http://www.mec.ca/Products/product_detail.jsp?PRODUCT%3C%3Eprd_id=845524442500177&FOLDER%3C%3Efolder_id=2534374302696609&bmUID=1177425692300

Figure 18 Nalgene Water Bottle

Water Carrier Bag. Water carrier bags are convenient for long treks where there is no water and for carrying water from a source to a campsite. Small bags are useful as they can be balanced on different parts of one's pack. Water bags can carry up to several litres of water.

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.



Mountain Equipment Coop, Copyright 2007 by Mountain Equipment Coop. Retrieved 24 April 2007, from http://www.mec.ca/Products/product_detail.jsp?PRODUCT%3C%3Eprd_id=845524441772631&FOLDER%3C%3Efolder_id=2534374302696609&bmUID=1177427868771

Figure 19 MSR Water Bag

Jerry Can. A jerry can is a large water container that has a capacity of 20 L. This container is either green or black in colour and is identified with the word ‘water’, as seen in Figure 20.



D Cdts 3, 2007, Ottawa, ON: Department of National Defence

Figure 20 Black and Green Jerry Can

CONFIRMATION OF TEACHING POINT 3

QUESTIONS

Q1. Containers of what two materials can store fuel?

Q2. What colour is a jerry can?

Q3. What is the capacity of a jerry can?

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.

ANTICIPATED ANSWERS

A1. Aluminium and plastic containers can store fuel.

A2. A jerry can is black or green.

A3. A jerry can holds 20 L of water.

Teaching point 4 **Identify the Contents of a First Aid Kit**

Time: 15 min Method: Interactive Lecture



This TP is intended to give an overview of a first aid kit. Lay out all items in the first aid kit and discuss each as listed.

FIRST AID KIT

When travelling with a group, carry a first aid kit of appropriate size and type for the group and the activities expected. The first aid kit must be readily available during training and must be carried with every group at all times.

Commercially available first aid kits are useful, but the contents need to be tailored for the field setting. The minimum contents of a first aid kit, as listed in A-CR-CCP-951-PT-002, are listed below:

Instruments

- **One Pair of Bandage Scissors.** Scissors are essential for cutting tape and bandages.
- **One Pair of Splinter Type Forceps.** Splinter type forceps resemble tweezers, and they are used for grasping and holding (e.g. removing wood splinters).
- **12 Safety Pins (Assorted Sizes).** A safety pin is a pin with a point that is bent back to the head and is held in a guard when closed. These are used to secure bandages, etc.
- **Two Splints.** A splint is stiff rigid material may be used for holding a limb or broken bone in a fixed position.
- **One Respirator With Valve.** A respirator with a valve is an apparatus for maintaining artificial respiration. It also provides separation between the casualty and the first-aider, protecting the transmission of infections when giving rescue breaths.

Dressings

Dressings are used to cover bleeding wounds. These dressings and bandages come in various sizes and types, to include:

- 25 separately wrapped sterile adhesive bandages (25 mm x 75 mm);
- 25 separately wrapped sterile gauze compresses (101.6 mm x 101.6 mm);
- 4 separately wrapped rolls of sterile gauze bandages (50 mm x 9 m);
- 4 separately wrapped rolls of sterile gauze bandages (101.6 mm x 9 m);
- 6 triangular bandages;
- 2 rolls of 75 mm wide elastic bandages;
- 4 separately wrapped sterile compress bandages (101.6 mm x 101.6 mm);

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.

- 1 roll of adhesive plaster (25 mm x 9 m);
- 2 rolls of 50-g cotton batting; and

Antiseptic pads

Antiseptic pads are sterile, free from contamination. They are used to clean the area surrounding a wound. Each first aid kit shall contain 25 separately wrapped antiseptic pads.

Sugar

Sugar is included in a first aid kit in the event that a diabetic becomes hypoglycemic. Hypoglycemia occurs when there is a deficiency of glucose (sugar) in the bloodstream. The sugar is either mixed with water and consumed or ingested directly.

Equipment

- **Blanket of Wool or a Moisture-proof Insulating Material.** This can be any type of wool blanket or a survival/emergency foil blanket. Only one is required and it is used to keep a casualty warm.
- **Waterproof Lighter or Matches.** Waterproof lighter or matches are useful for creating fire. Matches should not be wasted and only used when improvised methods fail.
- **Latex Gloves.** These gloves are used to provide a sterile barrier between the first-aider and the casualty. There shall be a minimum of two pairs per first aid kit.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS

Q1. Why are scissors in a first aid kit?

Q2. What purpose does sugar serve in a first aid kit?

Q3. Why are there latex gloves in the first aid kit?

ANTICIPATED ANSWERS

A1. Scissors are essential for cutting tape and bandages.

A2. Sugar is used in the event that a diabetic went hypoglycemic. Hypoglycemia occurs when there is a deficiency of glucose (sugar) in the bloodstream.

A3. Latex gloves are in a first aid kit to provide a sterile barrier between the first-aider and the casualty.

END OF LESSON CONFIRMATION



Complete either the equipment identification or questions for this TPs confirmation.

Hold up a piece of equipment and have the cadets identify it. Do this for five more items.

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.

QUESTIONS

Q1. What type of fuels can be used in equipment systems?

Q2. What is the head of an axe made of?

Q3. When going into the field, how many groups require a first-aid kit?

ANTICIPATED ANSWERS

A1. Liquid, compressed and solid fuel can be used in equipment systems.

A2. The axe head is made of tempered steel.

A3. All groups that travel independently require a first-aid kit.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Cadets have been provided with information on various types of equipment. This information allows cadets the opportunity to tailor their selection of equipment according to the needs of any weekend bivouac FTX.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

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.

C0-111 (ISBN 0-9740820-2-8) Tawrell, P. (2006). *Camping and Wilderness Survival: The Ultimate Outdoors Book* (2nd ed.). Lebanon, NH: Leonard Paul Tawrell.

C2-010 (ISBN 0-375-70323-3) Rawlins, C., and Fletcher, C. (2004). *The Complete Walker IV*. New York, NY: Alfred A. Knopf.

C2-016 (ISBN 0-517-88783-5) Curtis, R. (1998). *The Backpacker's Field Manual: A Comprehensive Guide to Mastering Backcountry Skills*. New York, NY: Three Rivers Press.

C2-042 (ISBN 0-7566-0946-1) Berger, K. (2005). *Backpacking & Hiking*. New York, NY: DK Publishing, Inc.

Unofficial convenience copy of A-CR-CCP-702/PF-001, cached 2026-11-08 from https://app.cadets.gc.ca/cadet-publications/A-CR-CCP-702-PF-001/A-CR-CCP-702-PF-001.pdf.
Verify against the official publication.