CHAPTER 17

PO 190 – PARTICIPATE IN AN AIRCREW SURVIVAL EXERCISE

ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 1

EO M190.01 – PACK PERSONAL EQUIPMENT FOR AN AIRCREW SURVIVAL EXERCISE

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-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Prepare a properly packed rucksack or backpack IAW the principles outlined in this lesson.

Ensure the rucksack or backpack includes all of the materials discussed in this lesson.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture method was chosen for TP 1 to orient the cadets on how to select field clothing and generate an interest in the subject.

A demonstration and performance method was chosen for TP 2 as it allows the instructor to explain and demonstrate packing personal equipment skills the cadet is expected to acquire while providing an opportunity for the cadets to practice the skill under supervision.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall be expected to select and pack appropriate personal equipment for field training.

IMPORTANCE

Selecting and packing the appropriate clothing is a key element of field training. Weather can be a large factor in a survival situation. Selecting the right clothing can help prevent unnecessary injury and weather-related illnesses. Improper packing techniques can cause discomfort and possible injury.

Teaching Point 1 **Explain how to select field clothing.**

Time: 30 min Method: Interactive Lecture

THE LAYERING PRINCIPLE

The Core Layer (Upper Body)

This layer lies next to the skin. It should consist of a wool or synthetic undershirt or a long-sleeved thermal top. The garment should be close fitting but not tight. It should be made of a material that absorbs perspiration and moves it away from the skin. This layer must be kept as clean as possible to prevent dirt from clogging the pores of the fabric.

The Second Layer

The second layer should be loose fitting and should keep the blood vessels of the neck and wrists protected and warm. It could consist of a zip-up top with a high neck or a shirt with a collar. Sleeves should be able to be rolled up and cuffs should be able to be buttoned. In hot weather, this layer may be used as an outer layer.

The Outer Layer

The outer layer should be a jacket that is both wind resistant and waterproof depending on the climate. For example, in the Arctic, a padded, windproof parka is required for protection against cutting winds and extreme cold. It must be able to vent to avoid overheating. In temperate areas, rain is the most common cause of cold or discomfort. Waterproof outerwear should be worn.

Underwear (Lower Body)

Long thermal underwear is only necessary in temperatures below freezing. In the Arctic a “groin patch” of impermeable material prevents wind chill in that area. If underwear gets wet, it eventually dries. However, this problem can be avoided by wearing waterproof pants. In mild weather this layer may consist of cotton shorts.

PANTS

Pants should allow freedom of movement and should be able to dry quickly. In very wet conditions, using a belt helps to prevent chaffing at the waist. Waterproof pants can be worn to help protect legs from rain, but may cause overheating. In very cold conditions, quilted over-trousers should be zipped over pants and boots for added protection.

Show examples of each piece of clothing during the explanation if available.

ADVANTAGES AND DISADVANTAGES OF FABRICS

Wool

Advantages. Wool has insulating properties even when wet. It remains comfortable until it is soaked and smolders rather than melts when exposed to excessive heat.

Disadvantages. It is heavy when wet and takes time to dry. When it is worn next to skin, it may cause itching, and may shrink when washed.

COTTON

Advantages. Cotton is durable, breathable and absorbs moisture. It is a good fabric for underwear and items worn next to the skin in warm climates.

Disadvantages. It may be heavy when wet and can shrink if it is dried at high temperatures. It may tear and burn easily. Also, it is not windproof.

Fleece or Pile

Advantages. As an outer layer, fleece forces moisture away from the body while keeping it warm. It is lightweight, hardwearing and does not absorb moisture.

Disadvantages. Fleece is not windproof and does not compress easily. It can collect balls of fluff on the outside after long use.

Synthetic Fabrics

Advantages. These fabrics allow sweat to evaporate while keeping rain and other moisture out. They are usually windproof and an excellent choice for an outer layer.

Disadvantages. The seams may come apart in water. In very wet conditions, the fabric pores may become clogged. The evaporation of sweat from the outside of the fabric may result in heat loss.

An acronym that can be used to remember the principles when selecting and wearing clothing in the field.

COLD – Keep the garment **C**lean. Avoid **O**verheating. Wear it **L**oose and **L**ayered. Keep it **D**ry.

FOOTWEAR

Thick socks made of either wool or fiber-pile cotton are vital. Socks keep feet warm, dry and prevent footwear from rubbing against skin. Rubbing can cause blisters and chafing. In cold weather two pairs of socks, an outer layer and an inner layer, should be worn. The inner layer forces moisture away from the foot and move it to the outer layer to keep the foot dry. Socks should be changed daily before bed.

BOOTS

Boots with a hard sole and good cushion are just as important as socks. Being comfortable and stable makes for a more enjoyable time in the field. Ankle support is important in the prevention of ankle injury.

WEATHER CONDITIONS

It is important to be prepared for any type of weather. Wearing a toque, scarf and mitts during cold weather prevents heat from being lost through the head. Mittens prevent injuries such as frostbite by keeping hands warm and blood circulating. During warm conditions, it is important to wear sunscreen and a hat to protect from the sun. Extended exposure to the sun can cause burns and sunstroke.

ACTIVITY

Time: 10 min

OBJECTIVE

The objective of this activity is to have the cadets dress up one of their peers in clothing for the field and the climate.

RESOURCES

- Clothes that represent the layering principle, to include:
  - a core layer,
  - a second layer,
  - an outer layer,
  - underwear, and
  - pants.
- Clothing that is made of different types of fabric, to include:
  - wool,
  - cotton,
  - fleece or pile, and
  - synthetic fabrics.
- Appropriate footwear.

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

1. Lay out the clothing according to its category prior to starting the activity.
2. Assign a cadet to be the “model”.
3. Question the cadets on what piece of clothing the cadet should put on first in accordance with the layering principle.
4. Continue until the cadet in fully clothed for the field.
5. When the cadet is dressed, question the cadets on the advantages and disadvantages of the type of clothing chosen for each layer (this might be easier when the cadet is taking each layer off).

SAFETY

Nil.

CONFIRMATION OF TEACHING POINT 1

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

Teaching Point 2 **Explain, demonstrate and have the cadets pack personal equipment for the field.**

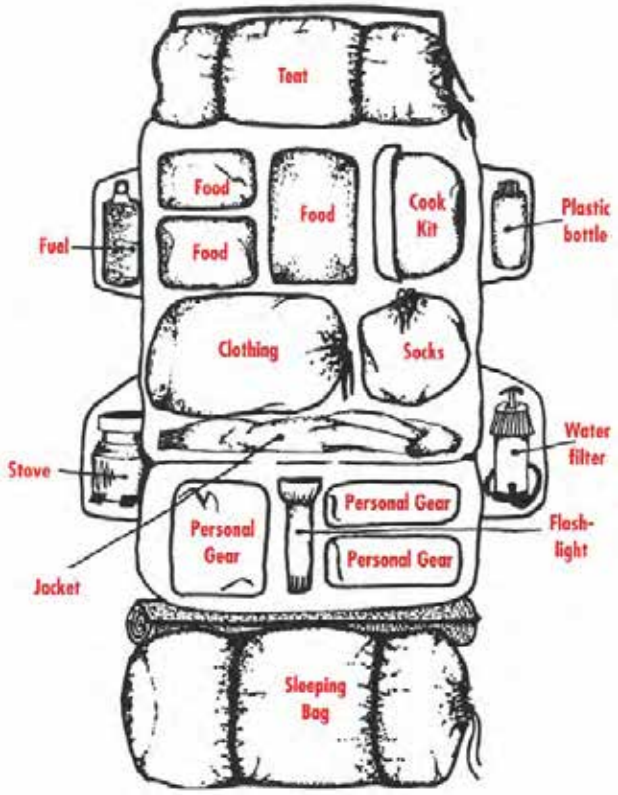
Time: 25 min Method: Demonstration and Performance

PACKING PERSONAL EQUIPMENT

While packing kit, ensure to place a large plastic bag inside the pack prior to packing it. This blocks moisture from reaching the contents. Each item should also be placed in a separate bag with the extra air removed to save space.

Place items in the pack by priority, with the most frequently used items on top or where easily accessible. The equipment needs to be placed in the pack so the weight is distributed and balanced appropriately. A poorly balanced pack can cause fatigue. The heaviest items should be placed near the bottom or the back of the pack to avoid back strain.

Ensure all items are secured to the pack to avoid losing items and having to constantly stop for adjustments.



Note. From Basic Essentials Backpacking, by Harry Roberts, 1989, Guildford, CT: The Globe Pequot Press.

Figure 1 A well-organized back pack

The tent should be placed on top of the pack with the sleeping bag and pad firmly attached under the backpack.

Food, clothing and a cooking kit are examples of what to place in the backpack itself.

Clothing should include extra socks, undergarments and polypropylene / synthetic t-shirt and pants.

Personal gear could include a first aid kit, waterproofed matches, flashlight, emergency candle and hygienic items. Items such as water bottle, stove, fuel canister, flashlight and a water filter can fit in the side pouches of the bag.

Demonstrate the packing of a backpack with the cadets performing the skill. The following activity will assist in allowing the cadets to practice the skill. Where the instructional environment does not allow for this option deliver it using the demonstration method.

ACTIVITY

Time: 15 min

OBJECTIVE

The objective of this activity is to have the cadets practice effective techniques of packing personal equipment prior to participating in an aircrew survival exercise.

RESOURCES

- Rucksack / backpack (one per cadet),
- Sleeping bag (one per cadet), and
- Materials provided by the instructor.

ACTIVITY LAYOUT

1. The cadets shall pack their own bag during this time following the instructor's example.
2. The cadets are to use all materials that are given to them to pack their rucksack / backpack.
3. The cadets are to ensure their rucksack / backpack weight is evenly distributed.

ACTIVITY INSTRUCTIONS

1. Have the cadets pack their own rucksack / backpack using the materials provided by the instructor.
2. Upon completion, the instructor is to inspect the rucksack / backpack to verify all equipment is packed properly and that the weight is evenly distributed.

SAFETY

Nil.

Supervise the cadets' packing method closely. It is advisable to have other instructors assigned to provide additional supervision and feedback to cadets during this activity.

If the cadets do not bring their own kit, ensure that an interactive demonstration of each packing step is given.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. Why should a large plastic bag be placed inside the backpack prior to packing it?

Q2. What does a poorly balanced backpack cause?

ANTICIPATED ANSWERS:

A1. This blocks the moisture from getting at the contents.

A2. A poorly balanced pack can cause fatigue.

END OF LESSON CONFIRMATION

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

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

Cadets have identified the appropriate clothes to bring with them to the field and how to effectively pack them. Selecting and packing approximately will help prevent fatigue and cold while in the field. Weather can be a large factor influencing survival. If one selects the right clothing, unnecessary injury and weather illnesses can be prevented. Improper packing techniques can cause discomfort and possible injury. It is important to ensure that equipment is packed properly prior to leaving for an aircrew survival exercise.

INSTRUCTOR NOTES / REMARKS

This EO is to be delivered at the squadron on the training night prior to the weekend aircrew survival exercise.

REFERENCES

C3-021 ISBN 0-7715-9035-0 McManners, H. (1994). *The complete wilderness survival manual*. Toronto, ON: McMillan Canada.

C3-024 ISBN 0-7627-0476-4 Roberts, H. (1999). *Basic essentials backpacking*. Guildford, CT: The Globe Pequot Press.

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ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 2

EO M190.02 – MAINTAIN PERSONAL EQUIPMENT AND HYGIENE IN THE FIELD

Total Time:	30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Prepare a packed rucksack / backpack.

Prepare resources for practicing field hygiene.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for this lesson to orient the cadets to maintaining personal equipment and personal hygiene and generate an interest in the subject.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadets shall have maintained their personal equipment and hygiene in the field.

IMPORTANCE

Caring for personal equipment and knowing how to safely use a knife prevents unnecessary injury. Practicing field hygiene principles contributes to the successful conduct of an aircrew survival exercise by preventing illness and maintaining a safe environment.

Teaching Point 1 **Explain how to care for personal equipment.**

Time: 5 min Method: Interactive Lecture

CARE FOR PERSONAL EQUIPMENT

All articles of clothing shall be kept as clean as possible. Dirt can get through some clothing and reach the skin. Sweat and dirt may cause skin irritation. The dirt may also get into the fibres of the fabric and destroy the insulation value. This potential loss of insulation is why undergarments must be changed daily.

Socks should be changed frequently. Wet or dirty socks can cause blisters and other skin irritation. Wash socks in lukewarm water. Carefully rinse out all of the soap, squeeze out the water, and stretch the socks back into shape. Socks should be kept in good repair and holes mended as soon as they appear.

Boots should be properly maintained by keeping them dry and soft. Boots should never be placed too close to the fire.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS:

Q1. Why must undergarments be changed daily?

Q2. What are the steps to take when laundering socks?

Q3. How are boots maintained?

ANTICIPATED ANSWERS:

A1. Dirt can get through some clothing and reach the skin. Combined with sweat, the dirt may cause considerable irritation.

A2. When laundering socks, use lukewarm water. Carefully rinse out all of the soap, squeeze out the water, and stretch the socks back into shape.

A3. By keeping them dry and soft and not to place them close to the fire.

Teaching Point 2 **Explain knife safety in the field.**

Time: 10 min Method: Interactive Lecture

CARE OF KNIVES IN THE FIELD

A knife should be kept sharp and carried in a suitable sheath. It should be returned to its sheath immediately after use and remain there when not in use. Always position the sheath on a waist belt towards the back of the hip. This positioning prevents the knife from being driven into the groin during a fall. Never angle the blade in another person’s direction. Always pass a knife closed or by presenting the handle to the person receiving it. Ensure the person receiving the knife is ready to accept the knife before letting go. Ensure that the sharp side of the blade is facing up when passing the knife. Always ensure knives are put away or safely stored.

SHARPENING

Sharpen a knife as soon as it becomes dull. Use a quality sharpening stone and apply lubricant as specified for the stone. To reshape an edge use a 400 grit sharpening stone. A 1 000 grit sharpening stone and above will sharpen the edge. A honing stone is used to polish the cutting edge and is above 2 000 grit. To polish

a blade that has stains on it, use wood ash as it does not scratch the blade. Use the following steps when sharpening a knife with a sharpening stone:

1. Apply a light coating of oil (if it is whetstone or oil stone) to the stone to lubricate and protect the surface. The oil helps keep bits of stone and steel – called slurry – on the surface of the stone. The slurry helps the cutting action of the stone. Ceramic and diamond stones can be used dry or wetted with water.

2. If a combination stone is being used, start with the coarsest grit side.

A hollow ground blade will be sharpened only at the cutting edge at a combined angle 20-30 degrees.

3. To sharpen a hollow ground blade, hold the knife with the back edge of the knife off the sharpening stone at 10-15 degrees.

4. To sharpen a flat ground blade, place the bevel flat on the stone. This registers the blade at the proper angle for sharpening.

5. Start where the blade meets the handle and draw the full length of the blade across the stone while moving the blade from one end of the stone to the other. Apply steady pressure. Repeat this eight times on each side.

6. Repeat the process using the fine side of the sharpening stone.

7. Using a honing stone and honing oil, hone the blade, alternate each stroke with the opposite side of the blade for eight strokes maintaining the same angle as before.

8. If a wire edge forms – a thin wire of steel at the very edge of the blade – repeat the same motion on a piece of cardboard or honing stone until the wire edge falls off.

9. Test for sharpness by cutting something or by looking at the edge of the blade for reflections from unsharpened areas, not by drawing the fingers across the blade.

10. Clean and dry the stone following the manufactures' instructions.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. How should a knife be stored and kept?

Q2. Why is the sheath positioned on the waist belt towards the back of the hip?

Q3. When passing the knife, which way should the blade be facing?

ANTICIPATED ANSWERS:

A1. A knife should be kept sharp and carried in a suitable sheath.

A2. This positioning prevents the knife from being driven into the groin during a fall.

A3. Up.

Teaching Point 3 **Explain how to maintain hygiene in the field.**

Time: 10 min Method: Interactive Lecture

FIELD HYGIENE REQUIREMENTS

Keeping healthy is an important factor for survival in the field. Strict hygiene routines should be practiced personally and at the survival site. Garbage and latrines shall be kept away from the site to avoid the threat of insects and illness. Proper hygiene practices also ensures drinking water is not contaminated.

WASHING

To keep clean, use soap and water while in the field. Special attention should be given to the groin area, scalp and between the toes. These areas are susceptible to rash and fungus infections. A daily shower with hot water and soap is ideal. If a shower is not feasible, keep hands as clean as possible. The face, armpits, crotch and feet should be washed and dried at least once a day. If soap is unavailable, wood ash can be used as a substitute. Washing daily can prevent the growth and spread of germs.

DENTAL CARE

Teeth should be cleaned with a toothbrush and toothpaste after every meal and before bed. Table salt or baking soda can be used as a substitute for toothpaste. If a toothbrush is not available, a green twig can be chewed to a pulpy consistency. The mouth should be rinsed with water after every meal.

WASTE DISPOSAL

It is important to manage waste effectively. Wet and dry garbage shall be separated into different sealed containers. It should be stored downwind and a suitable distance from the site. Water that is used to clean dishes, bodies, teeth or clothes is called grey water. This water must be disposed of by placing it in containers located near the washstands or latrines. Solid garbage shall be packed out of the site. If it is packed in it should be able to be packed out. It is the responsibility of each member to ensure that no trace of waste is left behind.

Where appropriate, the instructor shall indicate the locations associated with this teaching point. These include but are not limited to:

- washstand,
- latrines,
- port-o-potties,
- grey water disposal area, and
- wet and dry garbage disposal area.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS:

Q1. If a shower is not available, what parts of the body should one ensure to clean?

Q2. What can be used as a substitute for toothpaste?

Q3. What is grey water?

ANTICIPATED ANSWERS:

A1. Hands, faces, armpits, crotch and feet.

A2. Table salt or baking soda.

A3. Water that has been used to clean clothes, dishes, teeth, bodies etc.

END OF LESSON CONFIRMATION

QUESTIONS:

Q1. What is the proper action to take when sharpening a knife?

Q2. Where should the knife blade not be pointed?

Q3. What is grey water?

ANTICIPATED ANSWERS:

A1. Place the blade on the stone and pull it toward you in a circular motion and repeat this action many times. Ensure that this motion is completed an equal number of times on both sides.

A2. In another person's direction or at yourself.

A3. Water that has been used to clean clothes, dishes, teeth, bodies etc.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

Cadets have learned how to care for their personal equipment, using a knife and maintaining personal hygiene in the field. Caring for personal equipment and safely using a knife while in the field is of the utmost importance.

INSTRUCTOR NOTES / REMARKS

This EO is to be delivered at the squadron on the training night prior to the aircrew survival exercise.

REFERENCES

C3-003 ISBN 1-896713-00-9 Tawrell, P. (1996). *Camping and wilderness survival: The ultimate outdoors book*. Green Valley, ON: Author.

C3-021 ISBN 0-7715-9035-0 McManners, H. (1994). *The complete wilderness survival manual*. Toronto, ON: McMillan Canada.

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ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 3

EO M190.03 – OBSERVE SITE POLICIES AND PROCEDURES

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-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Research animals indigenous to the aircrew survival exercise location.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for this lesson to give direction on policies and procedures of an aircrew survival exercise site.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have observed all site policies and procedures during an aircrew survival exercise.

IMPORTANCE

It is important to know and follow established site policies and procedures to ensure the site is maintained and functioning in a smooth and safe manner.

Teaching Point 1 **Describe safety issues related to field training.**

Time: 10 min Method: Interactive Lecture

GENERAL SAFETY

Cadets should be aware that running, engaging in horseplay or wandering off from the group is not acceptable behaviour during field training.

Include any other general safety concerns regarding the site.

MEDICAL PROCEDURES

In case of a medical emergency, all members need to be aware of what actions to take. Members need to know where the first aid area is located, what to do in a medical emergency, where to get medications, the muster point in case of an evacuation and who is in charge.

ENVIRONMENTAL PROCEDURES

It is extremely important that the environment is respected while conducting an aircrew survival exercise. Garbage and grey water should be disposed of in designated areas. Cutting down live trees, including breaking branches is not acceptable. Doing this may hinder the growth of the tree. In case of an environmental spill, cadets should advise staff members immediately and local authorities should be contacted.

Include any other environmental procedures regarding the site.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS:

Q1. What is not acceptable behaviour in the field?

Q2. What medical procedures need to be known by personnel?

Q3. Why should branches not be broken off a live tree?

ANTICIPATED ANSWERS:

A1. Running, engaging in horseplay and wandering off from the group.

A2. Where the first aid area is located, what to do if they come across a medical emergency, the muster point in case of an evacuation and who is in charge.

A3. It may hinder the growth of the tree.

Teaching Point 2 **Explain fire regulations in place at the training site.**

Time: 10 min Method: Interactive Lecture

FIRE PROCEDURES

All personnel need to be aware of what to do in case of a fire. If a member notices a fire they should shout “fire, fire, fire” and use a siren or whistle to sound an alarm. Upon hearing the alarm, all personnel should meet at the designated muster point. The member who noticed the fire should present themselves to the senior officer on site.

MUSTER POINT

The muster point is the area designated for all people at the site to gather together in case of a fire or other emergency. It should be located away from hazardous areas and near the best route out of the campsite.

FIRE FIGHTING EQUIPMENT

The fire pit location should contain basic fire fighting equipment such as fire extinguishers, fire brooms and buckets.

Show each area presented above and ensure everyone is clear on the fire regulations for the aircrew survival exercise site.

ACTIVITY

Time: 5 min

OBJECTIVE

The objective of this activity is to conduct a fire drill.

RESOURCES

Nil.

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

1. Choose a cadet to “find” the fire.
2. Have that cadet shout “fire, fire, fire.”
3. Have the rest of the group report to the muster point.
4. Debrief the cadets on the fire drill.

SAFETY

Ensure the area is free of obstacles that may cause cadets to fall or hurt themselves during the fire drill.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. What is the muster point?

Q2. What fire fighting equipment should be present at the campsite?

Q3. What should one do when noticing a fire?

ANTICIPATED ANSWERS:

A1. The muster point is the area designated for all people who are at the campsite to gather together in case of a fire or other emergency.

A2. Basic fire fighting equipment such as extinguishers, fire brooms and buckets.

A3. Shout “fire, fire, fire” and move to the muster point. The member who noticed the fire should present themself to the senior officer.

Teaching Point 3 **Give an overview of the layout of the site.**

Time: 15 min Method: Interactive Lecture

This teaching point should be presented at each of the locations listed. Have a sample exercise site completed.

COMMAND POINT / HEADQUARTERS

The command tent should be located in a centralized area and all personnel at the site should know its location.

FIRST AID AREA

The first aid area must be equipped with at least one stretcher, a well-stocked first aid kit and any additional equipment needed to treat minor injuries.

SLEEPING AREAS

Tents are usually divided into two groups, one for males and one for females. All tents should be erected at least ten feet apart with the doors opposite the prevailing winds.

FIRE PIT

Fire pits must be at least 100 meters away from the campsite and strictly in open areas. Permission to have a fire pit must be granted by local authorities and the forest fire rating must be checked prior to lighting a fire.

LATRINES

If at all possible before building a latrine, make use of an outhouse that may already be available. If a latrine must build be built, IAW local regulations, construct it as least 100 meters away from the campsite and not close to water.

PETROLEUM, OILS AND LUBRICANTS (POL) POINT

POL stands for petroleum, oils and lubricants. The storage area for these materials must be located at a reasonable distance from the bivouac site. Access to this area is limited.

WATER POINT

Drinking water should be obtained from a reliable source. Always boil water that is collected in the field to purify it. If collecting water from a fast moving stream, always get water upstream from washing and laundry areas.

WET AND DRY GARBAGE AREAS

Garbage should be bagged and removed from the bivouac site. There should be separate areas for wet and dry garbage and these areas should be marked clearly. Grey water should be disposed of in this area as well.

Identify any other areas that may be used during the exercise.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS:

Q1. What does POL stand for?

Q2. Where should the fire pit be located?

Q3. If collecting water from a fast moving stream, where should it be collected?

ANTICIPATED ANSWERS:

A1. Petroleum, oils and lubricants.

A2. Fire pits must be at least 100 meters away from the campsite and strictly in open areas.

A3. Upstream from the washing and laundry areas.

Teaching Point 4 **Discuss safety measures with regards to animals.**

Time: 15 min Method: Interactive Lecture

POTENTIAL ANIMALS

There is potential to run into many different animals during an aircrew survival exercise. Some of these animals may include:

- bears,
- cougars,
- rattlesnakes,
- moose,
- bison,

- elk, and
- wolves.

With each of these animals it is important to be aware of preventive measures to avoid them and what actions to take if an encounter occurs.

BEARS

Preventive measures to avoid an encounter with a bear include:

- looking for signs that a bear may be close. Signs include tracks and scat in the area;
- have the kitchen separate from the training site. Bears are attracted to food so having the kitchen separate may deter the bear from entering the training site; and
- making noise to deter the bear from coming in the general area.

Defensive measures to take in an encounter with a bear include:

- using pepper spray;
- using a shotgun;
- grouping everyone together to expand presence; and
- playing dead versus fighting fiercely.

COUGARS

Preventive measures to avoid an encounter with a cougar include:

- hiking in groups; and
- making noise to deter the cougar from entering the general area.

Defensive measures to take in an encounter with a cougar include:

- not running;
- grouping together to expand presence;
- speaking loudly;
- providing an escape route for the animal;
- facing the cat and maintaining eye contact;
- fighting back if attacked; and
- if attacked from behind, throwing the cat overhead and forward.

RATTLESNAKES

Preventive measures to avoid an encounter with a rattlesnake include:

- watching where steps are taken;
- looking closely before parting bushes;
- using a stick, not hands, when turning over stones or rocks;
- wearing stout boots; and
- checking bedding and backpacks before using.

Defensive measures to take in an encounter with a rattlesnake include:

- do not tease or pick up;
- do not make sudden movements, back off slowly and remain calm;
- if bitten, back away immediately and immobilize the bitten area, below the heart if possible; and
- do not tie a tourniquet or attempt to suck out the venom. Report to the nearest hospital as soon as possible.

WOLVES

Preventive measures to avoid an encounter with a wolf include:

- cooking and washing dishes away from the campsite; and
- hanging food and garbage away from sleeping area.

Defensive measures to take in an encounter with a wolf include:

- looking larger, raising and waving arms;
- making noise;
- throwing objects, like sticks, rocks, pots and pans;
- backing away slowly, do not move away from the animal; and
- keeping direct eye contact.

MOOSE, ELK AND BISON

Moose, elk and bison are only likely to charge when threatened or crowded. To prevent an attack distance should be kept from the animal.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS:

Q1. What are some of the animals that an individual may encounter on an aircrew survival exercise?

Q2. What defensive measures should an individual take when encountering a bear?

Q3. What preventive measures should an individual take to avoid encountering a wolf?

ANTICIPATED ANSWERS:

A1. Some of these animals may include:

- bears,
- cougars,
- rattlesnakes,
- moose,
- bison,
- elk, and
- wolves.

A2. The defensive measures to take in an encounter with a bear include:

- using pepper spray;
- using a shotgun;
- grouping everyone together to expand presence; and
- playing dead versus fighting fiercely.

A3. The preventive measures to avoid an encounter with a wolf include:

- cooking and washing dishes away from the campsite; and
- hanging food and garbage away from sleeping area.

END OF LESSON CONFIRMATION

The end of lesson confirmation consists of the class walking to each of the locations in the exercise site and explaining each of them. A different cadet should be chosen to explain each of the locations.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

It is important to know and follow established site policies and procedures to ensure the site is maintained and functioning in a smooth and safe manner. Knowing what do to do in case of a fire and knowing where the different areas of the exercise site are located ensures the weekend exercise runs as smooth as possible.

INSTRUCTOR NOTES / REMARKS

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

REFERENCES

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ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 4

EO M190.04 – DISCUSS SURVIVAL PSYCHOLOGY

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-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Prepare the case study material for the activity in TP 3.

Prepare the role-play material for the activity in TP 4.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for this lesson to orient the cadets to survival psychology and to generate an interest in the subject.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have discussed survival psychology.

IMPORTANCE

One of the most important requirements for someone in a survival situation is the ability to accept the reality of the situation and react appropriately. Knowing how to react in a survival situation gives an individual confidence to survive. The cadets should know what they would experience physically and emotionally if they were lost and in a survival situation. Knowing the procedure when lost and how to deal with fear promotes survival in the situation.

Teaching Point 1 **Explain the role of fear in a survival situation.**

Time: 5 min Method: Interactive Lecture

The following activity is designed to get the cadets thinking about fear. Ensure the following points that produce fear are discussed during the activity: death, being alone, animals / bugs, darkness, weakness, failure, discomfort, the unknown, and unidentified sounds.

ACTIVITY

Time: 5 min

OBJECTIVE

The objective of this activity is to have the cadets think about things they could be afraid of in a survival situation.

RESOURCES

Nil.

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

1. Have the cadets brainstorm things they may be afraid of in a survival situation.
2. Discuss how equipment, knowledge, and task focus can help reduce fear.

SAFETY

Nil.

BACKGROUND KNOWLEDGE

REACTIONS TO FEAR

Fear is a normal reaction in a survival situation and it can aid or hinder individuals, depending on their reaction. It can lead to hopelessness and decreased self-confidence as well as reducing the will to survive. Fear, however, can release adrenaline, giving greater strength and stamina, reducing pain sensation, giving the ability to think clearly and helping to act purposively. Accepting fear as a natural reaction to a threatening situation leads to productive behaviour. Because of this, fear can greatly increase chances for survival.

DEALING WITH FEAR

The factors most commonly reported to help decrease or control fear are:

- having confidence in a leader if in a group or in one’s self if alone;
- having confidence in the equipment; and
- concentrating on the job to be done.

CONFIRMATION OF TEACHING POINT 1

The cadets' participation in this activity serves as confirmation of this TP.

Teaching Point 2 **Explain taking action when lost: stopping, thinking, observing and planning.**

Time: 10 min Method: Interactive Lecture

THE 'STOP' ACRONYM

Taking immediate action when lost in the wilderness is critical to dealing with fear. In such a situation, the STOP acronym should be employed.

STOP

When lost, stopping prevents the person from moving further away from the area a search crew may cover. It is also important to stop, to think effectively, and not make errors due to hasty decisions.

THINK

It is critical to think about what actions should be taken once a person realizes they are lost. Consider the danger and consequences of either staying or moving on. Consider the possible dangers that could occur and analyze the weather, terrain and available resources when deciding on the actions to be taken.

OBSERVE

Conduct a self-analysis to identify symptoms of any physical ailments such as fatigue, increased heart rate, or shivering. Check for psychological ailments such as extreme stress or fear. Observe surroundings for resources, weather potential, terrain, and landmarks that may provide information on the current location.

PLAN

After thinking and observing all aspects of the situation, plan a course of action that best utilizes the available resources.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. What are the four main actions to take when lost in the wilderness?

Q2. Why is it important to stop if lost?

Q3. During the thinking portion of STOP, what are some important things to keep in mind?

ANTICIPATED ANSWERS:

A1. Stop, Think, Observe and Plan.

A2. It is important to stop to think and avoid making errors due to hasty decisions.

A3. It is important to identify any immediate and future dangers, as well as weighing the pros and cons of staying put versus continuing on.

Teaching Point 3 **Explain the survival pattern and how to employ it in a survival situation.**

Time: 15 min Method: Interactive Lecture

GENERAL

The survival pattern is a procedure used in a survival situation. It is a method of prioritizing tasks.

The pattern is presented in a particular sequence during this lesson; however, the pattern can vary depending on the situation and changes in priority. For example, if lost while hiking with a group, the first procedure in the pattern done should be to signal (blow the whistle) because there are people near by.

FIRST AID

The most important thing to address in a survival situation is any injury. Treating injuries can prevent them from worsening, reduce pain and allows for more involvement in survival activities.

FIRE

Fire serves many purposes in a survival situation. It can provide warmth, boost morale, and a sense of security. It is also a method for creating signals, purify water and cook food.

SHELTER

Shelter allows a person to be warm and dry from the elements. Even if the current weather conditions are favourable, it is not always possible to know when and how the weather conditions may change. Therefore, building a shelter early is very important. It also provides the psychological comfort of having a home base.

SIGNALS

Signals should be constructed to attract search teams and can take many different forms. Signal fires with a heavy amount of dark smoke are visible from a long distance during the day or night. Other ground to air signals should be large and stand out from the surroundings, or be placed in nearby open areas. A mirror or other reflecting object is an excellent tool for signalling.

FOOD AND WATER

Survival without water only last a few days. A lack of water can lead to dehydration, which reduces the ability to concentrate. This is dangerous as clear thinking is essential in a survival situation. Water from any ground source should be purified before drinking.

A person can live for weeks without food. Excessive hunger can cause confusion and a lack of judgement. Prolonged starvation results in loss of energy, loss of mental clarity, increased susceptibility to disease, difficulty maintaining body temperature, and eventually death. A balanced and varied diet can improve morale in a survival situation.

ACTIVITY

Time: 10 min

OBJECTIVE

The objective of this activity is to have cadets apply STOP and the survival pattern in a provided scenario.

RESOURCES

One copy of a survival scenario per group, found in Attachment A (laminated, if possible).

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into two groups.
2. Provide each group with a survival scenario.
3. Give the cadets five minutes to read the scenario and answer the questions provided.
4. Have one cadet from each group share their answers with the class.

SAFETY

Nil.

CONFIRMATION OF TEACHING POINT 3

The cadets' participation in this activity will serve as confirmation of this teaching point.

Teaching Point 4 **Explain the seven enemies of survival and how to combat them.**

Time: 20 min Method: Interactive Lecture

GENERAL

Pain, cold, thirst, hunger, fatigue, boredom, and loneliness are enemies of survival. In a survival situation, these feelings are more severe and more dangerous than in normal situations. Having knowledge of these feelings and their effects can assist in overcoming and controlling them.

PAIN

Pain is nature's way of identifying problems. However, pain can subside if an individual is pre-occupied. Pain may go unnoticed if an individual's mind is occupied with plans of survival. Once a person gives into pain, it weakens the drive to survive. A special effort should be made to keep an individual's hopes up and keep working.

COLD

Cold lowers the ability to think and to complete necessary tasks for survival. Focusing on being cold can interfere with the goal of survival. Cold can numb both the mind and body. It can also lead to serious medical problems. Find ways to get and stay warm, like building a fire, getting dry, layering clothes, and keeping busy.

THIRST

Water is vital for survival. Dehydration can lead to serious medical problems, and can eventually be fatal. Even when thirst is not extreme, it can dull the mind. Drink regularly, and try to find sources of water.

HUNGER

Hunger is dangerous because it can lessen the ability for rational thought. Both thirst and hunger increase a person's susceptibility to the weakening effects of cold, pain and fear. Prolonged hunger can lead to serious medical problems and can eventually be fatal. Manage food supplies, set snares, fish, and collect edible plants.

FATIGUE

Even a moderate amount of fatigue can reduce mental ability. Fatigue can make people careless as it becomes increasingly easy to adopt the feeling of just not caring. This is one of the biggest dangers in survival. While fatigue can be caused by over-exertion, it may also be caused by hopelessness, losing sight of goals, dissatisfaction, frustration or boredom. Fatigue may represent an escape from a situation that has become too difficult. Recognizing the dangers of a situation can provide the strength to go on. Watch exertion levels, set goals, and stay busy.

BOREDOM AND LONELINESS

Boredom and loneliness represent the final two enemies of survival. They are perhaps two of the toughest enemies of survival, mainly because they are unexpected. When nothing happens, when something is expected and does not happen, or when a person must stay still, quiet, and alone, these feelings develop. They can cause discouragement and a lack of will to go on. Invent games, stay active, and create projects.

ACTIVITY

Time: 5 min

OBJECTIVE

The objective of this activity is to have the cadets act out the seven enemies of survival.

RESOURCES

- Slips of paper with one of the seven enemies of survival on each.
- Container from which to draw the slips (bag, hat, etc.).

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

1. Randomly select a cadet to draw the first slip.
2. Have the cadet silently act out the enemy of survival shown on their slip.

3. Have the rest of the cadets guess which enemy is being acted out.
4. Select another cadet, until all the enemies have been portrayed.

SAFETY

Nil.

END OF LESSON CONFIRMATION

QUESTIONS:

Q1. What factors cause fear?

Q2. What factors reduce fear?

Q3. What does STOP stand for?

ANTICIPATED ANSWERS:

A1. Hopelessness and helplessness.

A2. Confidence in equipment, person (or leader), focusing on the tasks at hand.

A3. Stop, Think, Observe, and Plan.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

One of the most important requirements for someone in a survival situation is the ability to accept the reality of the situation and react appropriately. If cadets are able to react calmly to a survival situation and develop a sensible plan, they are more likely to experience success.

INSTRUCTOR NOTES / REMARKS

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

REFERENCES

A3-016 B-GG-217-001/PT-001 Director Air Operations and Training. (1978). *Down but not out*. Ottawa, ON: Department of National Defence.

C3-005 ISBN 0-89886-814-9 Sierra Club San Diego Chapter. (1999). *Wilderness basics: The complete handbook for hikers & backpackers*. Portland, OR: The Mountaineers Books.

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Survival Scenario

You are on a camping trip with your family. It is a pleasant day in mid-October. The campsite is far from town, and your family is the only one there. At 3 pm, you decide to go on a short hike. You start off along a clearly marked trail. When you see a rabbit, you follow it off into the woods. When the rabbit finally goes down a hole, you realize you are lost. You don't know which direction the trail or the campsite is. You have been gone from the campsite for about two hours. You are lost in the woods.

In your backpack, you have:

- a one litre bottle of water,
- a sandwich bag of trail mix, and
- a bird identification book.

You are wearing jeans, a t-shirt and a light jacket. The wind is picking up, and it looks like rain.

QUESTIONS

1. What is the first thing you should do?

2. Think about the consequences of staying where you are, or wandering through the woods. What are the pros and cons of each?

3. Consider the key elements of the survival pattern – first aid, fire, shelter, signals, and food and water. What is your plan?

4. What kind of things would you want to observe about your surroundings?

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Suggested Answers for Survival Scenario – Instructor Use Only

1. What is the first thing you should do? STOP.

2. Think about the consequences of staying where you are, or wandering through the woods. What are the pros and cons of each?

Staying		**Walking**	
Pros	**Cons**	**Pros**	**Cons**
Effective use of time to develop and implement effective survival pattern. Staying in one place makes you easier to find. Prevents you from going farther away from potential search parties. Familiar with the nearby surroundings.	There may be hazards with the current location. There may be little or no resources at the current location. There is no chance of finding your way to civilization if you do not leave. Boredom could develop.	Could find your way to civilization – if you know the direction to travel. Could find better site for setting up shelter and signals.	Get more lost. Move away from a location where people can find you. End up unprepared for nightfall. Wasting energy. Increase risk of injury. Inadequate clothing or shoes.

3. What kind of things would you want to observe about your surroundings?

   - Physical dangers.
   - Flooding hazards.
   - Food and water sources.
   - Location for shelter.
   - Signs to help determine location.
   - Evidence of animals.
   - Fire resources.
   - Shelter resources.

4. What is your plan?
   First Aid. There are no injuries, so this is not a concern.
   Build a fire. This is good for signalling and warmth in the short term.
   Build a shelter. Stay dry in case it rains.
   Signals. If there is an open area, lay ground-to-air signals. Build additional signal fires.
   Water. Stay hydrated. Find additional water sources before the litre runs out.
   Food. Ration the trail mix. Find additional sources of food.

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ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 5

EO M190.05 – IDENTIFY TYPES OF SHELTERS

Total Time: 30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Select two sites, as described in the activity section of teaching point one.

Survey the survival site to see if there are fallen trees or caves present to use as visual aids during the lesson.

Create an a-frame shelter and a lean-to shelter for demonstration purposes during the class.

If the materials are available, erect an arctic bell tent, modular tent section and/or civilian-pattern tent for demonstration purposes during the class.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for this lesson to orient the cadets to types of shelters.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have identified types of shelters.

IMPORTANCE

In a survival situation, it is important to be able to construct an effective shelter. A shelter protects a person from weather, animals and insects. Shelters also provide warmth, shade, comfort and is an important component of the survival pattern.

Teaching Point 1 **Explain the importance of site selection.**

Time: 10 min Method: Interactive Lecture

Before presenting the information provided below, ask the cadets what they feel is important when selecting a site for a shelter. Do not confirm or correct their responses at this time. It is simply a lead off question to get them thinking.

LAND CONSIDERATIONS

Site selection should begin before dark if possible. The shelter should be built near a source of water, building materials (trees, boughs) and fuel. Specific land considerations include:

- the area must be large enough for the type of shelter planned,
- the area should not be at the bottom of a hill because of possible water runoff,
- the area should be relatively flat, but slightly sloped to allow drainage, and
- dry river gullies should be avoided, because of possible water collection in the gully.

WATER CONSIDERATIONS

Water plays an important role in site selection. Specific water considerations include avoid building too close to:

- water, to avoid insects, and
- the drinking water source, to prevent contamination.

ANIMAL AND INSECT CONSIDERATIONS

Animals and insects can also cause problems at the site. Specific animal and insect considerations are:

- avoid setting up a shelter where there are animal trails or standing water,
- fast flowing streams will have fewer insects than still water, and
- avoid areas infested with ants or bees.

OTHER CONSIDERATIONS

Other considerations to keep in mind when selecting a site include:

- there should be an open area nearby to construct signals,
- the entrance of the shelter should face the sun to add warmth and increase morale,
- avoid collecting thick wood for creating fires because it is harder to dry,
- try to find a natural windbreak or a place that is away from strong wind currents,
- avoid swampy terrain, and
- if a fire is to be built, it should be located at the opening of the shelter, and it should be done at a distance.

ACTIVITY

Time: 5 min

OBJECTIVE

The objective of this activity is to have the cadets identify a good site for shelter construction.

RESOURCES

Nil.

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

- Show the cadets the two sites; one a good site and the other a poor site.
- Ask the cadets to choose the best site and indicate why they made that choice.
- Ask them to identify faults in the poor site for shelter construction.

SAFETY

Nil.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS:

Q1. Why should the site not be located at the bottom of a hill?

Q2. Why should the site not be built too close to the drinking water source?

Q3. Why should there be an open area near the shelter when selecting the site?

ANTICIPATED ANSWERS:

A1. To avoid possible water runoff.

A2. To avoid contamination of the drinking water source.

A3. To maintain an area for construct signals.

Teaching Point 2 **Describe natural shelters.**

Time: 5 min Method: Interactive Lecture

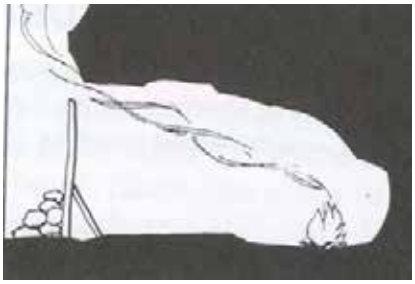
The instructor should find examples of each type of natural shelter on the training site. If possible, deliver this teaching point proximal to the shelters. The instructor should have pictures of the shelters to show the class, in case one or both of the natural shelters cannot be found in the area.

NATURAL SHELTERS

Natural shelters are effective to use in situations where there are limited resources. Different types of natural shelters can be used for short term and / or long term shelters.

CAVES

Caves may serve as long-term shelters and do not take energy to build. They are also good waterproof shelters. The entrance should be sealed off with items such as rocks, logs, or wattle (boughs and broken branches). When building a fire, ensure to place it at the back of the cave so smoke goes out the opening. If the fire is placed by the opening, the smoke blows back into the cave.



Note. From The SAS Survival Handbook, by John Wiseman, 1999, London, England: HarperCollins Publishers.

Figure 1 Cave Shelter

FALLEN TREE

A fallen tree can make a great temporary shelter. When using a fallen tree as a shelter, ensure that the tree is stable and will not fall further. Also, be aware of other falling trees in the area. Coniferous trees with pine branches are the best because of the dense branch structure. The branches can be woven for protection.

Note. From The SAS Survival Handbook, by John Wiseman, 1999, London, England: HarperCollins Publishers.

Figure 2 Fallen Tree Shelter

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. Name two types of natural shelters.

Q2. When lighting a fire inside a cave, what should be kept in mind?

ANTICIPATED ANSWERS:

A1. Cave and fallen trees.

A2. The fire should be lit towards the back of the cave so the smoke goes out the opening.

Teaching Point 3 **Describe improvised shelters.**

Time: 5 min Method: Interactive Lecture

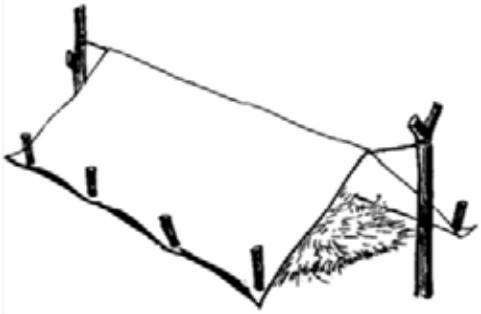
Prior to instructing the lesson, the instructor must ensure there is an a-frame shelter and a lean to shelter on site to use as visual aids to the class. Directions as to how to properly set up the shelters listed below are provided in Attachment A.

IMPROVISED SHELTERS

Improvised shelters are used in situations where immediate protection from the elements is required. They are shelters that can be constructed quickly from various materials. The a-frame and lean-to are two types of improvised shelters that are very effective in protecting against the elements. A type of a-frame shelter is the hootchie-style shelter.

A-FRAME SHELTER

An a-frame shelter is a simple shelter that can be constructed with a groundsheet or waterproof poncho. The groundsheet or poncho can be tied to two wood stakes by twine or roots found on the site. The construction of this shelter will be further detailed in an upcoming lesson.

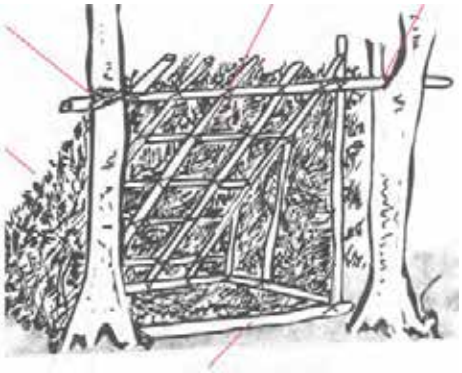


Note. From The SAS Survival Handbook, by John Wiseman, 1999, London, England: HarperCollins Publishers.

Figure 3 A-Frame Shelter

LEAN-TO SHELTER

A lean-to shelter is constructed by using a horizontal crosspiece between two trees, with a panel of boughs or saplings used as a roof.



Note. From The SAS Survival Handbook, by John Wiseman, 1999, London, England: HarperCollins Publishers.

Figure 4 Lean-to-Shelter

CONFIRMATION OF TEACHING POINT 3

QUESTIONS:

Q1. When are improvised shelters important to use?

Q2. What materials are needed to construct an A-frame shelter?

Q3. What are the main components of a lean-to shelter?

ANTICIPATED ANSWERS:

A1. When permanent shelters are not available. In situations where immediate protection from the elements are required.

A2. A ground sheet/waterproof poncho and twine/roots.

A3. A lean-to shelter is composed of a horizontal cross-piece between two trees, with a panel of boughs or saplings used as a roof.

Teaching Point 4 **Describe tentage.**

Time: 5 min Method: Interactive Lecture

TENTAGE

Tentage is a permanent type of shelter that is useful for coping with the elements.

The instructor is encouraged to emphasize certain types of tentage below, based on what types of tents are available to the squadron during this exercise. When setting up the types of tentage mentioned below to use as training aids, the instructor is encouraged to refer to Attachment A for proper directions.

ARCTIC TENT

An arctic tent is a tent that can provide adequate shelter for up to ten people. It is composed of a center pole, which goes through the top of the tent. The tent is then pegged down on all corners and tightened to provide optimal space inside.

MODULAR TENT

Modular tentage is often used as a sleeping or classroom setting for a large number of people. It is also effective in providing shade during hot days. It is erected in sections by using a combination of metal frames and canvas covering.

CIVILIAN-PATTERN TENTS

Civilian-pattern tents are a third type of tentage that can be used for sleeping quarters. Civilian-pattern tents vary in shape and size and are constructed to accommodate anywhere between 1 and 10 people.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS:

Q1. For how many people can an arctic shelter provide shelter?

Q2. What are the uses of modular tents?

ANTICIPATED ANSWERS:

A1. It is composed of a center pole, which is erected through a hole in the top of the tent. The tent is then pegged down on all corners and tightened to provide optimal space inside.

A2. Modular tentage can be used as sleeping quarters, a classroom setting, and can also provide shade during hot days.

END OF LESSON CONFIRMATION

All cadets will be required to assist in the construction of various shelters during the aircrew survival exercise. This lesson leads to the construction of an A-frame style shelter and no formal end of lesson confirmation activity is required. The instructor should pose questions to the group to confirm the information presented in this EO was understood.

QUESTIONS:

Q1. What are the various types of factors that need to be remembered when selecting a site?

Q2. When are natural shelters effective to use?

Q3. What are two types of improvised shelters?

Q4. What are three types of tentage?

ANTICIPATED ANSWERS:

A1. Land considerations, water considerations, animal and insect considerations and other considerations.

A2. In a situation where limited resources are available.

A3. A-frame shelter and lean-to shelter.

A4. Arctic tents, modular tents, and civilian-pattern tents.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

Constructing shelter is a key component of a successful survival pattern. In such a situation, protection against the elements and against wildlife or insects is extremely important. Knowing how to properly select a site, and furthermore how to construct a shelter effectively will significantly assist someone in such a scenario.

INSTRUCTOR NOTES / REMARKS

All shelters listed should be setup prior to the lesson being taught.

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

REFERENCES

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A3-012 B-GG-302-002/FP-001 DAD. (1982). *Basic cold weather training*. Ottawa, ON: Department of National Defence.

C3-002 ISBN 0-00-653140-7 Wiseman, J. (1999). *The SAS survival handbook*. Hammersmith, London: HarperCollins Publishers.

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C3-004 ISBN 1-85227-866-8 Davies, B. (1999). *SAS encyclopedia of survival*. London, England: Virgin Publications.

ERECT AN A-FRAME SHELTER

1. Select a level area with good drainage.
2. Ensure the area is free of hazards, (i.e., overhanging branches that may fall, too close to roadways etc).
3. Zip two shelter halves together, ensuring flap covers zipper.
4. Attach cord to the grommets at both ends near the joined zipper.
5. Suspend both ends from trees or other objects so that the centre is approximately waist high.
6. Stretch out the sides and secure them using sticks.
7. Attach cord to the middle grommets on each side and tie the cord to pull the side out and give more room to the inside.
8. When possible, dig a drainage trench on both sides.

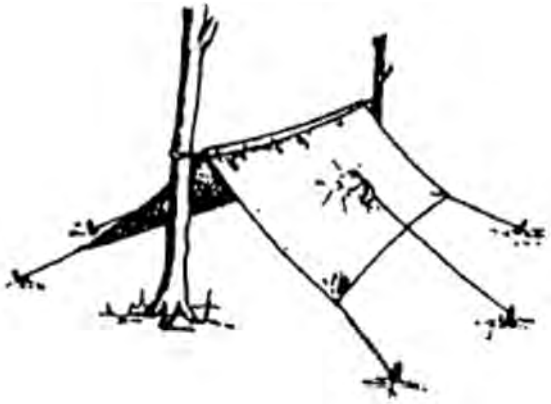


Figure A-1 A-Frame Shelter

LEAN TO SHELTER

1. To build a lean-to, two trees must be found with fairly firm, level ground between them. These trees are called the uprights. The distance between these two trees will be the opening of the lean-to.
2. Next, a ridgepole must be found. This must be a fairly thick pole, around fist size in thickness, and should be long enough to reach from one upright to the next.
3. The ridgepole should be placed behind the uprights from the viewpoint of the person facing the uprights. Natural notches in the uprights may be perfect to hold the ridgepole. If these are not available, the ridgepole will be laced onto the uprights using the square lashing. (It may be a good idea to lash the ridgepole on even when using natural notches to ensure the pole is secure). After the square lashing is completed, the ridgepole should be very secure. In fact, the people who will be using the shelter should be able to sit on it and it should not move.
4. The height of the ridgepole should be the height of the waist of the tallest person if a group will be staying in the shelter. This will make the shelter opening fairly low, which will help conserve heat inside the shelter. For a one person lean-to, the ridgepole should be placed lower, at mid thigh height.
5. Find approximately 8 poles about 5-7 cm in diameter. These will serve as the pole framework for the lean-to and will be known as the spars. They will be tied onto the ridgepole using the square lashing, and will run from the ridgepole to the ground. Spread these evenly, going from just inside one upright to the other.

6. The number and the height of the people living in the lean-to will determine the length of the spars. For a group, the spars should be slightly longer than the height of the tallest person. If the shelter will sleep one person, the spars should be about the same height as the chest of that person.

7. Find approximately 8 small flexible poles that will run horizontally across the spars. These will be known as the ribs. The length of these should be that of the distance between the two spars closest to the uprights. These ribs should be woven horizontally through the spars. If long enough ribs cannot be found shorter ones can be used. Weave the shorter ribs as far as possible and then start at the point ended with a new piece.

8. A pole around the same thickness as the ridgepole should be found and laid on top of the bottom of the spars. This is known as the foot log.

9. Vertical poles will be placed from the ground to the spars on the furthest sides of the lean-to. These do not need to be laced onto the spars. They should be tall enough to reach from the ground to the spar, and since the spar is on a slope, the vertical poles will need to be of varying heights.

10. Place boughs with the stem toward the ridgepole and the top of the bough upwards (the glossy side).

11. Make a row going right across the bottom with the boughs close together.

12. For the next layer, lay the boughs into the first layer; again with the top of the bough facing up.

13. Repeat step 12 until the top is reached and the boughs cover the lean-to like shingles cover a roof.

14. Weave the stems of more boughs into the layers that now cover the lean-to. These layers should be thick enough to be waterproof; about 15cm thick is a suggestion.

15. For the sides of the lean-to, boughs can be placed as in the steps above until the ground is reached.

16. If a fire has been made, extend boughs about a foot down the front of the lean-to to keep out rain or wind, but allow the heat from the fire to enter.

17. Boughs can also be used to cover a part of the front as described above if there is no fire. Just leave an opening for a door in case quick exit is required.

CIVILIAN-PATTERN TENTS

Civilian-pattern tents come in various sizes and forms and, therefore, have different ways to be erected. Users should read the information booklets provided with the tent in order to correctly erect it.

ARCTIC TENT ASSEMBLY AND PITCHING

1. Lay out the outer tent, flat apex in the centre and panels outwards with the inside facing upwards, and the door zipper fastened.

2. Lay out the inner tent liner on top of the outer tent, with the inside facing upwards.

3. Attach the top and bottom stovepipe toggles. By lining up the stovepipe openings of the outer and inner liner and attaching the top and bottom toggles, then the inner and outer portions are positioned properly.

4. Working either way, attach the remaining toggles. Use the corners of the tent as checkpoints to make sure no toggle was missed. Continue until all toggles are through the seam grommets of the inner liner.

5. Thread the long or the lower drying line through the drying line keepers. To get the drying line keepers through the inner seam splits, feel through the liner at the peak or centre of the doorway, follow up the seam on the panel of the outer tent, when you reach the drying line keeper, insert it through the split seam of the liner and thread the drying line on. There is a keeper on every seam. This means there are 10 keepers for the lower drying lines.

6. Thread on the short or upper drying line. Start at the door seam again and carry out the same drill as for the lower drying line. There will be a keeper on each side of this one and then one on every second seam. This means that there will be six drying line keepers on the top.

7. Insert the spike of the tent pole through the apex of the inner and outer tents and lash these three securely.

8. Attach the five bottom tie-down pegs. To do this, run a rope through the bottom wall eyelets of the outer and inner tents, tying the pegs to the outside.

9. Attach the wall guy lines to the guy line loops on the outer tents. To do this, thread the guy lines through one hole of the runner then through the guy line loop of the tent and back through the outer hole of the runner. Tie a figure of eight knot on this end of the guy line to prevent it from slipping out of the runner hole. The other end of the guy line is threaded through the eye of the peg of the line and is prevented from being pulled out of the peg by a slipknot. This method of attaching guy lines must be used as the rope will invariably freeze in the peg hole and to reverse of the above procedure will prevent tightening of guy lines. In addition, when the ground is too hard, or snow too soft and deep, the pegs can be secured by wrapping several turns of the guy line to the centre of the peg and either freeze the peg in the snow or place a large stone or log on top of the peg.

10. Attach the five top guy lines in the same manner.

11. The tent is now assembled and ready for use, however, when the tent is pitched and the doors are opened quite often the zippers become disengaged. To prevent this, close the zipper and near the top of the door, sew the track of the zipper together. This will act as a stopper, preventing the zipper from becoming disengaged. Do this to the outer and the inner tent zippers.

12. The fly screen is of no use in cold weather and should be rolled up and secured by the ties running each way from the door to the outside corners. Roll and secure this screen, only after the tent has been pitched. If done when the tent is struck, the tent will be misshapen when pitched.

13. To prevent the guy lines from being left hanging loose and becoming tangled, roll the guy rope around the tent peg and in the guy rope loop. In most cases the guy rope loops are sewn too far down and the loop is not large enough for the peg to fit in. To overcome this, thread short pieces of the rope through the guy line loops and tie with a square knot. Adjust the knot so the peg will fit securely in it.

STRIKING AN ARCTIC TENT

1. Members take positions. One person is inside at the tent pole. Three people are at the guy ropes located above the left side tie-down point, above the right side tie-down point, and above the back tie-down point. One person is supervising the procedure and giving orders.

2. The order “pull pole” is given.

3. The person inside the tent pulls the bottom of the pole towards the door and lowers the tip to the rear of the tent. That person disconnects the lower section or telescopes the pole, depending on which pole is being used.

4. The member at the back guy rope grasps the apex of the tent.

5. The person at the pole backs out of the door, carrying the pole sections and base plate, and zippers the door closed.

6. The two persons at the right and left side guy ropes roll up the guys and secure them to the tent. They pull out the remaining pegs, roll up the guys and secure them to the tent.

7. The members pull the tent to the rear and spread it out on the ground.

8. The order “shake out” is given. Members spread around the tent, shake the snow/ice/sand/etc. out and fold the tent p for stowing.

FOLDING AN ARCTIC TENT FOR STORAGE

1. Lay out the tent with the tent door up and in the centre and with zippers closed.

2. Make sure there are no double folds on the underside.

3. Hold the apex securely: the first long fold is made by folding the wings to the centre, with the pegs straight up and down.

4. Straighten and flatten out.

5. Fold in snow flaps across the base.

6. Make the second long fold, repeating the action as for the first long fold.

7. Straighten and flatten out.

8. Make the third long fold.

9. Straighten and flatten out;

10. Fourth long fold – flip folds one on top of the other.

11. Make the first cross fold: fold in base at the top of wall.

12. Make the second cross fold by folding the apex into the base of the inserted pole section allowing approximately 4 inches of loose fold at the base of the pole section to avoid wear and tear: top of pole should be offset.

13. Third cross fold – place the folds one on top of the other.

14. Insert in the bag (base plate and spare pegs have already been placed in the bag).

15. Place the remaining two pole sections in the bag alongside the tent.

16. Tie up the top of the tent bag.

PITCHING AND ANCHORING A MODULAR TENT

The key stages for pitching and anchoring a modular tent are as follows:

1. Lay the frame parts on the ground and erect the arch frames (A frames), leaving the uprights folded and placed at equal distances one from the other.

Figure A-2 A Frame

2. Join the tie beams (purloins) to each of the arches at the summit and roof edges, locking them into place.

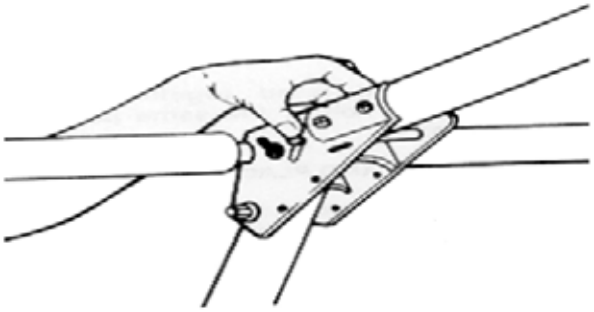


Figure A-3 Joining of the Tie Beams

3. Generally using one person per arch, raise one side of the frame.

Figure A-4 Raising One Side

4. Before lacing the tent canvas together, close all doors. Lace the tent canvas together, placing them on the frame and attaching them at the top of the arches.

Figure A-5 Lacing the Tent Canvas

Figure A-6 Half of the Tent Is Laced

5. Raise the other side of the frame.
6. Attach the stays without tensioning them and lace the rest of the canvas.
7. Using straps, attach the canvas and lining to the ties on the edges of the roof.
8. Align the arches and adjust the canvas.
9. Raise the tent completely.
10. Drive pickets in each foot from the outside.
11. Tension the stays.
12. Attach the ground canvas using sandbags or earth.
13. Dig drainage trenches as required.

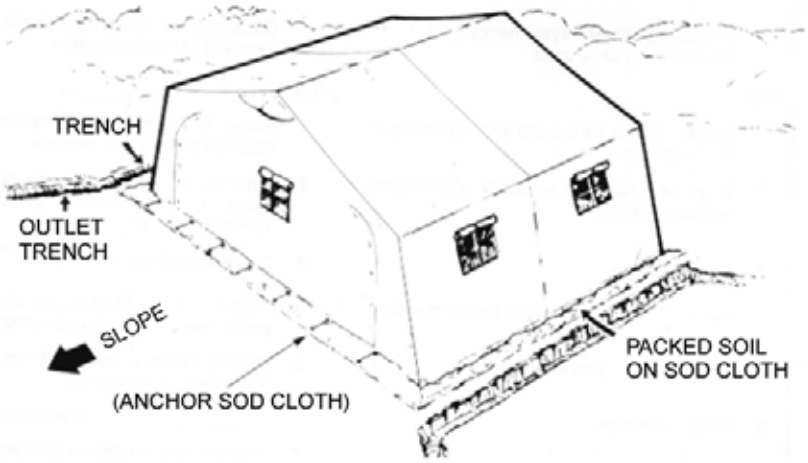


Figure A-7 Modular Tent

STRIKING A MODULAR TENT

1. Release cables and anchors and remove them if the wind is not too strong. Otherwise, leave them in place until the tent has been disassembled.
2. Remove earth or sandbags covering the ground sheet.
3. Undo adjusting stays from the edge of the roof.
4. Unlace the sides of the tent and lower one side.
5. Remove the lining strapped to the frame, and fold it.
6. Lower the other side of the tent, unlace tent parts, remove them from the frame and fold them.
7. Disassemble the frame and pack the components.
8. Take necessary steps to clean and dry components as required, with the shortest possible delay.

FOLDING THE CENTRE CANVAS

1. After having removed the canvas from the frame, close the windows and doors.
2. Stretch the canvas inside a building on the floor, on a dry and clean surface.
3. Clean the canvas and ground sheet using a broom.
4. Fold the ground sheet towards the centre.
5. Fold the canvas on its length towards the centre of the sheet, until the canvas is long and narrow.
6. Fold the canvas in the other direction towards the centre.

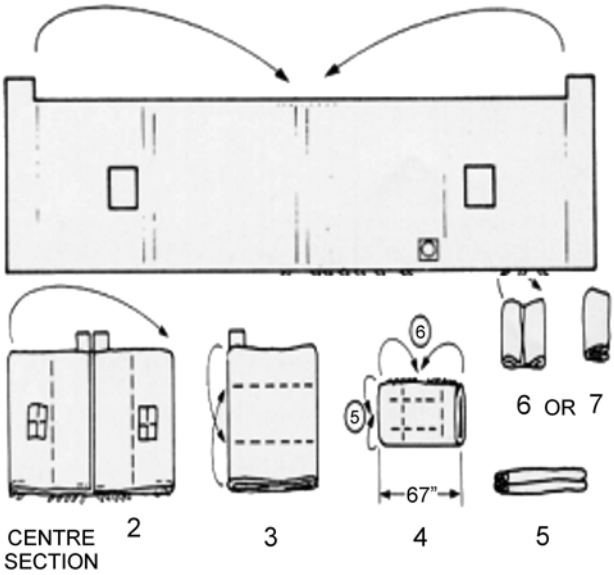


Figure A-8 Folding of the Centre Section

FOLDING THE OUTSIDE WALLS (DOORS)

1. As for the central canvas, clean the canvas and fold the ground sheet towards the inside.
2. Fold the point towards the inside part.
3. Fold the canvas towards the centre and secure it.

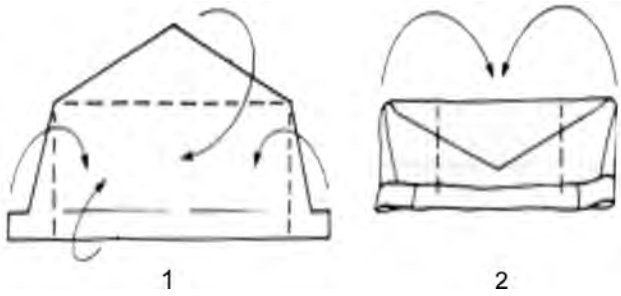


Figure A-9 Folding The Outside Walls

ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 6

EO M190.06 – LIGHT, MAINTAIN AND EXTINGUISH A FIRE

Total Time:	90 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Prepare a fire ready to be lit.

Prepare examples of types of fires.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for TPs 1, 3 and 4 to illustrate the application of rules, principles and concepts of fire safety, elements of fire and types of fires.

A demonstration and performance was chosen for TPs 2 and 5 as it allows the instructor to explain and demonstrate site location and layout, lighting, maintaining and extinguishing a fire.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall be expected to apply fire safety principles and light, maintain and extinguish a fire.

IMPORTANCE

Safety is a key concern when dealing with fire. Cadets must understand and apply principles of fire safety before they begin the steps in lighting. Fire is also the second step in the survival pattern and may be the difference between living and expiring while in a survival situation.

Teaching Point 1 **Explain principles of fire safety.**

Time: 5 min Method: Interactive Lecture

OBEY FOREST FIRE DANGER RATING SYSTEM

In cooperation with various fire management agencies, the Canadian Forest Service manages the Forest Fire Danger Rating System. The system uses weather, fuel and topographic data to rate the potential for forest fire ignition and to predict forest fire behaviour. The Forest Fire Danger Rating System must be at a suitable level prior to starting a fire. Never light a fire when the rating is high, very high or extreme. The slightest spark could cause a forest fire.

Note. From "Natural Resources Canada" by Canadian Forest Service, 2009, The Atlas of Canada. Retrieved October 26, 2011, from http://atlas.nrcan.gc.ca/auth/english/maps/environment/naturalhazards/forest_fires/firedangerrating/1

Figure 1 Forest Fire Danger Rating System

STRONG WINDS

If wind speed is high, the fire will be at risk of spreading if not properly managed. Strong winds can carry sparks away from the fire pit and start an unwanted fire. The fire should be placed in a location where it is effectively sheltered from strong winds.

SIZE OF FIRE

The fire shall be a suitable size so control can be maintained at all times. Never allow a fire to get larger than four feet wide and three feet high. Fires that are too large can burn out of control, and cause forest fires or personal injury. If a fire becomes too large, stop adding fuel and let the fire cool down.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS:

Q1. What is the Forest Fire Danger Rating System?

Q2. What might happen if a fire is placed in an area with strong winds?

Q3. Why maintain a suitable size fire?

ANTICIPATED ANSWERS:

A1. The Forest Fire Danger Rating System uses weather, fuel and topographic data to rate the potential for forest fire ignition and to predict forest fire behaviour.

A2. It is at the risk of spreading.

A3. Fires that are too large can burn out of control, and cause forest fires or personal injury.

Teaching Point 2 **Explain, demonstrate and have the cadets determine an appropriate site location and layout for a fire.**

Time: 15 min Method: Demonstration and Performance

SITE LOCATION

Avoid windy areas because the fire can flare up and burn out of control. A reflector or a windbreak can be built out of green wood or rocks. The advantage of a reflector is that it concentrates the heat in the desired direction. Areas near water tend to have higher winds.

Clear the ground of all inflammable material before starting the fire. The material should be raked towards the centre of the site where the dead leaves, pine needles and other debris can be burned.

Do not build the fire against an old log or tree trunk. The log may smoulder and catch fire in a breeze.

Do not build the fire below the boughs of a tree. The boughs will dry from the heat and may catch fire.

The fire should be a suitable distance from any shelter in case the wind changes direction.

SITE LAYOUT

Surround the fire with dry rocks. They will help contain the fire so it may be properly maintained. Do not use rocks that have been submerged in water. Water expands as it is heated and may cause the rocks to explode. If rocks are unavailable, dig a pit approximately one half foot deep and four feet wide. This pit helps prevent of the fire from spreading.

Appropriate fire fighting equipment shall be placed in close proximity to the fire.

Deliver this teaching point around a properly constructed fire site.

ACTIVITY

Time: 10 min

OBJECTIVE

The objective of the activity is to allow the cadet to practically apply the principles learned by constructing an effective fire site.

RESOURCES

- Suitable location for a fire site,
- Rake,
- Shovel,
- Rocks,

- Fire extinguisher,
- Gerry can,
- Water pack,
- Water,
- Bucket of sand,
- Wire broom,
- Axe, and
- Fire bell.

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

- Divide cadets into small groups.
- Direct cadets to find an appropriate location for a fire by applying the site location principles.
- Provide cadets with a rake and shovel, and have them clear the ground and dig a pit that will accommodate their fire.
- Have the cadets gather dry rocks and surround their fire pit.

SAFETY

Ensure cadets safely use the equipment.

After the cadets have completed the activity they should return to the original fire site for the next portion of the lesson.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. Why is it unwise to build a fire near an old log or a tree trunk?

Q2. Why must the rocks that surround the fire not be submerged in water?

Q3. What equipment should be in close proximity to the fire site?

ANTICIPATED ANSWERS:

A1. They may smoulder and catch fire.

A2. Water expands when heated and the rock may explode.

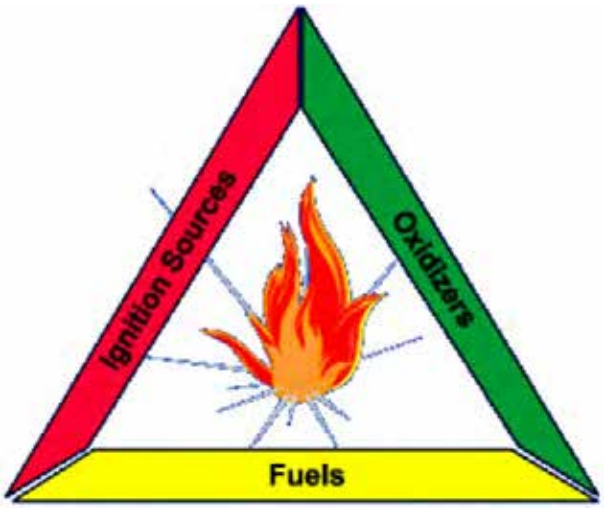
A3. Fire fighting equipment.

Teaching Point 3 **Identify the required elements of a fire.**

Time: 5 min Method: Interactive Lecture

ELEMENTS OF A FIRE

The three required elements for a fire include oxygen, spark / heat and fuel.



Note. From "Covidien Energy-based Professional Education", 2006, The Fire Triangle, 2010, by Covidien AG, October 26, 2011, from http://www.valleylabeducation.org/fire/pages/fire-12.html

Figure 2 Fire Triangle

Oxygen is required for a fire to stay lit. A spark is required to initially start the fire. The heat produced by the embers keeps the fire going. Fuel is anything that burns, such as wood.

If any one of the elements is removed, the fire will extinguish. When lighting a fire, always ensure adequate ventilation, enough fuel and a hot enough source to ignite the fuel.

Demonstrate how oxygen, heat / spark and fuel are all needed to start a fire and keep it lit.

Using a candle, a match and a large water glass, explain that without the match (spark) the candle (fuel) cannot be lit. Light the candle and place the empty water glass over the candle to prevent air (oxygen) from reaching it. The flame will extinguish.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS:

Q1. What are the three required elements of a fire?

Q2. If one element is removed, what happens to the fire?

ANTICIPATED ANSWERS:

A1. Oxygen, spark / heat and fuel.

A2. The fire will go out.

Teaching Point 4 **Describe types of fires.**

Time: 15 min Method: Interactive Lecture

WARMTH AND COMFORT FIRES

Warmth and comfort fires can help to conserve body heat and save needed calories. These fires can be helpful in keeping away wild animals and insects. Warmth and comfort fires are the most practical fires, as they consume little fuel and burn slowly.

SIGNAL FIRES

Signal fires should produce heavy black smoke to attract potential rescuers. This black smoke can be generated by the addition of green branches, rubber, plastic or heavy oil to an already well-established fire.

COOKING FIRES

Cooking fires should be set flat on the ground. They can also be constructed in a pit if there is heavy wind or the surrounding ground contains a fire hazard. Cooking fires shall be a moderate size or the food burns. The hot coals can be used to start a warmth and comfort fire to heat the camping area when cooking is finished.

Examples of these fires should be built to use as training aids.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS:

Q1. What are two advantages of a warmth and comfort fire?

Q2. What are some items that can be added to a fire to produce thick black smoke?

Q3. What type of ground surface should a cooking fire be on?

ANTICIPATED ANSWERS:

A1. They can help conserve body heat, help save needed calories, keep wild animals and insects away, and they are the most economical.

A2. Green branches, rubber, plastic or heavy oil.

A3. They should be on flat ground.

Teaching Point 5 **Explain, demonstrate and have the cadets practise lighting, maintaining and extinguishing fires.**

Time: 45 min Method: Demonstration and Performance

LIGHTING A FIRE

TINDER

Tinder is any kind of material that a minimum amount of heat ignites. Good tinder needs only a spark to set it ablaze. Birch bark, dry grass, fine wood shavings, bird down, waxed paper and cotton fluff from clothing all make good tinder. Tinder must be dry. It is a good idea to carry tinder in a waterproof container.

METHODS FOR OBTAINING A SPARK

Matches. Matches are the easiest way to start a fire. They produce a flame instantly when struck against a striking pad. The biggest problem with matches is that in wind or wet conditions they may not be useful. They will not ignite if the striking pad becomes worn or wet. The matches should be packed in waterproof containers so that they cannot rub or rattle together and accidentally ignite. Non-safety, strike anywhere matches are the most effective in a survival situation.

Flint and steel. Flint and steel is the best method of lighting a fire if matches are unavailable. If the flint is struck vigorously with a piece of steel it produces hot sparks that ignites the fire. The flint should be stuck downward so the sparks hits the centre of the tinder. Even if the flint is wet it still produces a spark.

Magnifying glass. Magnifying glasses focus strong direct sunlight to produce enough heat to ignite a fire. The light from the sun should be directed onto the tinder. The obvious disadvantage to the magnifying glass is that if the sun is not out, it will not produce a spark.

Battery and steel wool. Strands of steel wool can be attached to the terminals of a car battery to produce enough spark to start a fire. When the two strands of steel wool are brought close together, a spark jumps between them.

Using a nine-volt battery demonstrate this method for obtaining a spark.

KINDLING

Kindling is the wood used to raise flames from the tinder so larger less combustible materials can be burned. The best kindling consists of small, dry twigs and small pieces of soft woods. Do not collect kindling straight from the earth because it is usually damp. It should be gathered from standing deadwood.

FUEL

Fuel is anything that burns in the fire. Dry wood from standing trees should be used to get the fire going. Once the fire is established, greener and damp wood can be used. Hard woods include hickory, beech and oak. These hard woods burn well, give off heat, and last a long time as hot coals. The fire can be maintained for a long period of time using hard woods. Soft woods burn very quickly and give off sparks. They can be used when lighting the fire. These soft woods include cedar, alder, hemlock, spruce, pine, chestnut and willow. After the fire is steadily burning, add fuel that is three to four times the size of the kindling.

MAINTAINING A FIRE

A fire should never be left unattended. It takes only seconds for a fire to begin burning out of control. Immediately after a fire has been started, it requires a modest amount of wood to build up heat. The fire requires very little wood to keep it burning once a good amount of heat is built up.

VENTILATION

Ventilation allows the needed oxygen to be supplied to the fire. The more oxygen introduced, the brighter the fire. The ideal amount of ventilation results in a steady burn while only using a moderate amount of fuel. The fire suffocates if there is too much fuel.

EXTINGUISHING A FIRE

Water is the easiest way to put out a fire. Water should be dumped on the fire until it results in no heat emanating from the centre. Ensure that all of the sparks are out prior to decamping by smothering it completely with wet earth or sand and filling the fire pit.

ACTIVITY

Time: 30 min | Method: Activity

OBJECTIVE

The objective of this activity is to allow the cadet to practically apply the principles learned by constructing, lighting, maintaining and extinguishing a fire.

RESOURCES

- Matches,
- Flint and steel,
- Battery and steel wool,
- Magnifying class,
- Tinder,
- Kindling,
- Fuel,
- Fire site,
- Rake,
- Shovel,

- Fire fighting equipment, and
- Water.

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into small groups.
2. Have the cadets in their groups, return to their fire pit.
3. Provide cadets with a rake and shovel, and firefighting equipment.
4. Have each group prepare the tinder and kindling.
5. Have each group light the fire using a match.
6. Have each group maintain the fire for three minutes.
7. Have each group extinguish their fire.
8. Ensure that the fire is completely extinguished.

SAFETY

Ensure fire-fighting equipment is near each fire site.

CONFIRMATION OF TEACHING POINT 5

QUESTIONS:

Q1. What is fuel?

Q2. What does kindling do?

Q3. Name two of the four methods of obtaining a spark mentioned in this lesson.

ANTICIPATED ANSWERS:

A1. Fuel is anything that burns (wood, gasoline etc).

A2. Kindling is the wood used to raise the flames from the tinder so that larger less combustible materials can be burned.

A3. Matches, flint and steel, magnifying glass, battery and steel wool.

END OF LESSON CONFIRMATION

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

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

Safety is a key concern when dealing with fire. Cadets must understand and apply principles of fire safety before they begin the steps in lighting. Fire is also the second step in the survival pattern and may be the difference between living and expiring while in a survival situation.

INSTRUCTOR NOTES / REMARKS

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

REFERENCES

C3-002 ISBN 0-00-653140-7 Wiseman, J. (1999). *The SAS survival handbook*. Hammersmith, London: HarperCollins Publishers.

C3-003 ISBN 1-896713-00-9 Tawrell, P. (1996). *Camping and wilderness survival: The ultimate outdoors book*. Green Valley, ON: Author.

ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 7

EO M190.07 – ERECT, TEAR DOWN AND PACK TENTS

Total Time:	120 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Additional instructors are required for this lesson to ensure TP1 is covered in the time allotted.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

A demonstration and performance was chosen for TP 1 as it allows the instructor to explain and demonstrate erecting, tearing down and packing a modular tent while providing an opportunity for the cadets to practice these skills under supervision.

A demonstration was chosen for TPs 2–3 as it allows the instructor to demonstrate the skills while providing the cadets with knowledge on erecting, tearing down and packing tents.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have to erected, tore down and packed a two-section modular tent with walls.

IMPORTANCE

It is important for the cadets to be able to erect a modular tent because they are often used during survival exercises. A cadets' understanding of the erecting, tearing down and packing of tents allows them to better assist in the set-up of an aircrew survival exercise site.

Teaching Point 1 | **Explain, demonstrate and have the cadets, as a member of a group, erect, tear down and pack a two-section modular tent with walls.**

Time: 60 min | Method: Demonstration and Performance

For this skill lesson, it is recommended that the instruction take the following format:

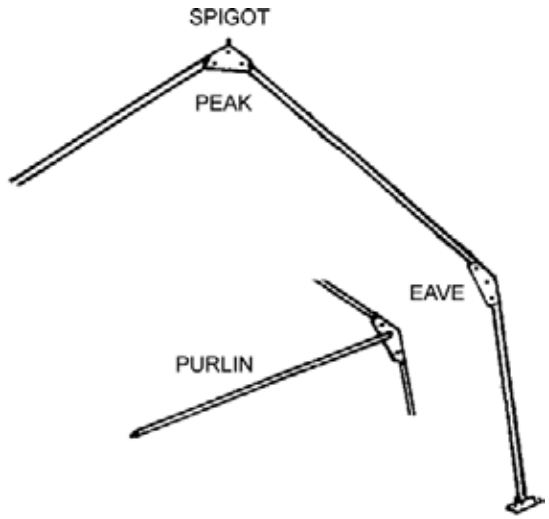
1. Divide the flight into two groups.
2. Explain and demonstrate each step in erecting, tearing down and packing a modular tent.
3. After demonstrating each step have the cadets perform the skill while monitoring their performance.

Note: Two instructors are required for this TP.

If the modular tent is going to remain erected for the duration of the exercise instruct tearing down and packing at the end of the exercise.

COMPONENTS OF A MODULAR TENT

A module of tent is comprised of a canvas section supported by tubular aluminum framework. It measures 2.5 m long by 5.5 m wide. The frame of a modular tent consists of two arch frames and three purlins (the horizontal beams along the length of the roof that support the canvas). The arch frame is hinged at the peak and the eaves. When folded the arch measures 2.75 m long. The purlins are 2.5 m long and connect two arches; one purlin at the peak and two more at each eave. They are locked into place without the use of tools. The framework is anchored with steel pegs which are inserted at the base of each arch and can be diagonally cross braced with cables or straps, between the eaves and base of the arches, to give an unobstructed inside space and an outside perimeter clear of guy wires. Guy wires are only used when the tent requires further reinforcement.



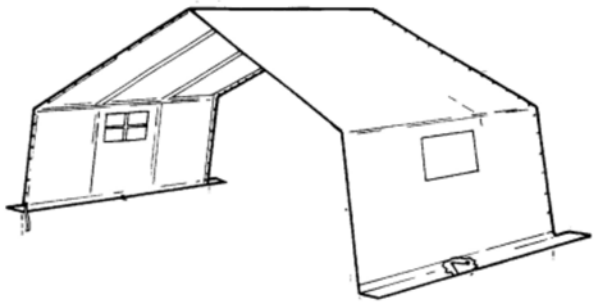
Note. Created by Director Cdts 3, 2007, Ottawa, ON: Department of National Defence.

Figure 1 Frame

TENT SECTIONS

The three tent sections are: centre sections, front walls and rear walls. The tent sections attach to one another by means of a series of cord loops and grommets known as “Dutch lacing”. The cord loops are on the opposite side of the grommets requiring all sections to be placed in the same direction. For example, all the cord loops on the right. Tent sections are made of olive green, core-spun, polyester-cotton, rip-stop woven material treated to be water-, rot- and flame-resistant. The sod cloth which extends 40 cm from the foot of each tent section is made from plastic-coated, waterproof material. The windows are screened and have blackout flaps and transparent vinyl panels which are attached with fastener tape (Velcro).

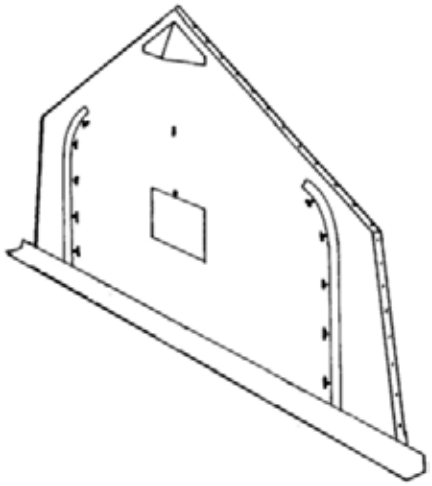
Centre section. This is the canvas roof and side wall covering of a module. It has a window in each side and a chimney opening in the roof.



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 1-5), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 2 Centre Section

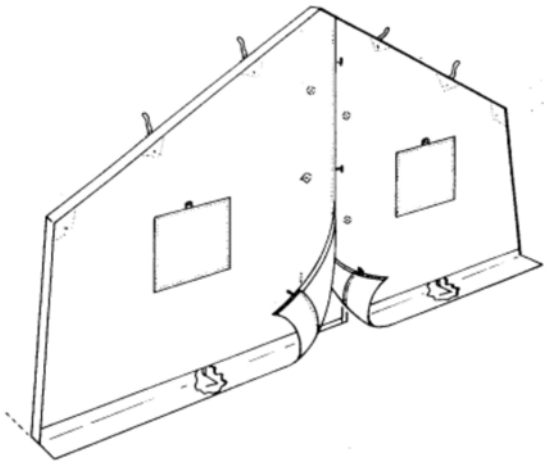
Front wall. Attaches with grommets and opens with two zippered personnel doors. The front wall includes one window and a closable air vent.



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 1-5), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 3 Front Wall

Rear wall. Attaches with cord loops and opens in the centre. The opening reaches the peak of the module and is fastened with toggles, allowing access for large equipment. The rear wall includes two windows.



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 1-5), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 4 Rear Wall

ACCESSORIES

Liners. The three common tent sections—centre section, front wall and rear wall—each have corresponding white fabric liners. These provide insulation as well as a light reflective surface, and are made from flame resistant material. The liners are suspended from inside the frame and are laced together similar to the tent sections.

Blackout hallway. Black fabric enclosure, 2.5 m long, attached inside the tent and laced to a grommet by the doorway, to prevent the entranceway from emitting light.

Lacing band. Provides the cord loops, to tie the two tent sections together when the module lacing sequence is disrupted because two grommet ends meet. It is 8.5 m long and 15 cm wide. A strap and a hooked shock cord are at each end to secure it to the frame and keep the band taut against the canvas.

Guy wires. Lines of cord that assist in securing the tent to the ground. Available for situations where the footings cannot be anchored in the ground or where the tent is subject to extreme windy conditions.

Bag tent. This is a flat canvas wrap specifically designed for containing tent sections. It includes a pocket to hold pertinent hardware.

Tools. A mallet, shovel and occasionally a stepladder. Tools are not included.

Explain tent maintenance and site selection to the cadets, but do not demonstrate or have the cadets perform.

TENT MAINTENANCE

The following precautionary measures, when followed, protect the tent components from corrosion, mildew, rot and unnecessary damage and work to prolong the life and usefulness of the tentage:

- Avoid folding or packing tent or liner sections when wet. Wet or damp tentage shall be unfolded and air dried within 48 hours.
- Protect tent and liner sections from petroleum and chemical stains. If soiling occurs, clean immediately with warm soapy water.
- Do not allow oil, mud or other foreign matter to gather or harden on frame components. Warm soapy water or cleaning solvents are recommended for cleaning. The components should not be lubricated.
- Do not leave collapsed tent sections and components in contact with the ground or exposed to the elements for more than 48 hours.
- All detected damage should be identified, reported and repaired at the earliest convenience.
- Dragging tentage on the ground, walking on tentage and general rough handling is prohibited.
- Effort shall be made to keep tentage equipment serviceable at all times and preventative maintenance practices must be employed during use.
- Erect and tear down tentage in accordance with the detailed procedures.

A site should be pre-determined when explaining these points. There is no requirement for the cadets to choose a site.

SITE SELECTION

The following considerations should be made when selecting a site for the modular tent:

- Access for vehicles is required for easy set-up and equipment transport.
- Firm level ground, high enough for natural drainage, is preferred. It is recommended to have a tough grass turf, free from projecting tree roots and rocks.
- Positioning the tent to avoid prevailing winds bearing directly in line with an end wall.

- A shady area free of underbrush is recommended in a hot climate. Doors should be accessible and trees that rub against the canvas in the wind should be removed or avoided.
- Cooking shall be conducted 100 m from tents used for sleeping personnel.

When selecting a tent site on snow-covered ground, choose an area free from crevices. Prod the surface to ensure that a flat base is selected. The snow shall be removed until a firm base is exposed. The tent shall, if possible, be positioned so that its side is located downwind to avoid drifting snow blocking the entranceway.

Explain, demonstrate and have the cadets perform each step in erecting, tearing down and packing.

ERECTING

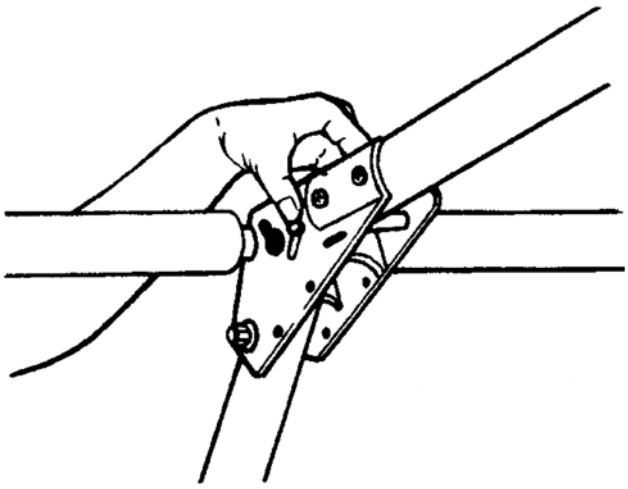
Lay out and Connect Frame

Expand all arch frames leaving the legs in a folded position and space them in module increments using a purlin as a measure. Connect the purlins to each arch at the peak and eaves.

Frame Locks

To operate the connecting, locking device on the peak bracket, first ensure the lock is released, by:

1. Placing the button head pin of the purlin into the bracket keyhole and push it upwards in the keyhole slot.
2. Moving the sliding bar up to allow the pivot lock to be swung over to hold the purlin in place.
3. Moving the sliding bar down to lock the pivot.
4. Operating the save bracket lock by lifting the sliding bar.
5. Releasing the arch frame leg from its erected state and moving down the lever lock, located inside the eave bracket.



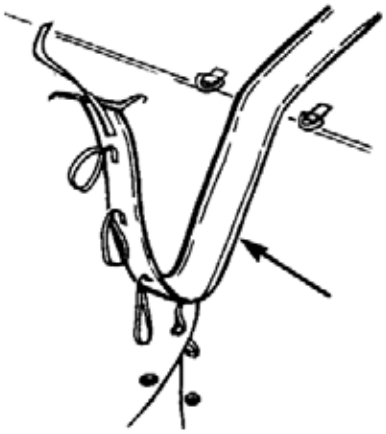
Note. From Operational Support and Maintenance Manual for Tent, Main (p. 2-5), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 5 Frame Lock

Connect Tent Sections

Identify the tent sections and position them so the front-rear sequence of lacing corresponds to the front and rear wall location. Lace the centre sections together using the dutch lace as follows:

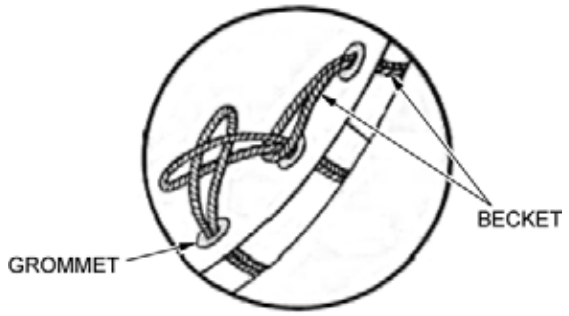
1. Sandwich the grommet side between the flaps on the lacing side.



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 2-8), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 6 Canvas Lacing

2. Pass the cord loops through the corresponding grommet holes and then through the next loop working from the centre outwards.
3. Tie off the last loop.



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 1-8), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 7 Canvas Lacing

Raise Side and Place Canvas

The following steps outline the procedure for raising the modular tent structure and placing the canvas:

1. Ensure the doors on the front and rear walls are closed. If the doors are left open they will be difficult to close after the modular tent is erected.

2. Raise one side of the frame with one person assigned to each arch frame. In windy conditions temporarily secure the upright section to the ground with the tent pegs.

Note. From Operational Support and Maintenance Manual for Tent, Main (p. 2-8), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 8 Erect One Side

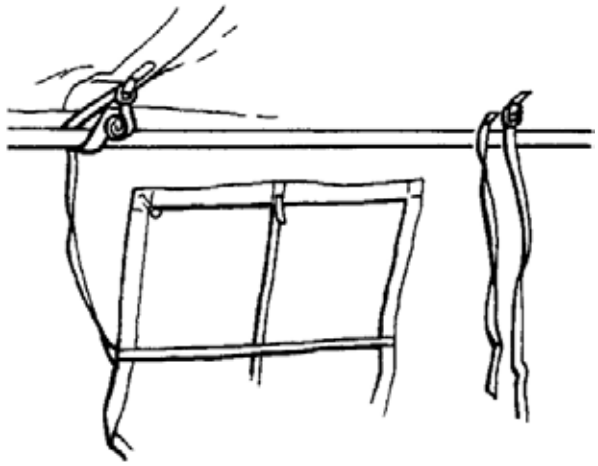
3. Place the previously folded canvas on the sloped side of the frame, positioning the master grommets (large holes at the peak of the canvas) over the frame spigots (large point at the peak of the frame), and then unfold the canvas onto the raised side.

Note. From Operational Support and Maintenance Manual for Tent, Main (p. 2-8), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 9 Place Canvas

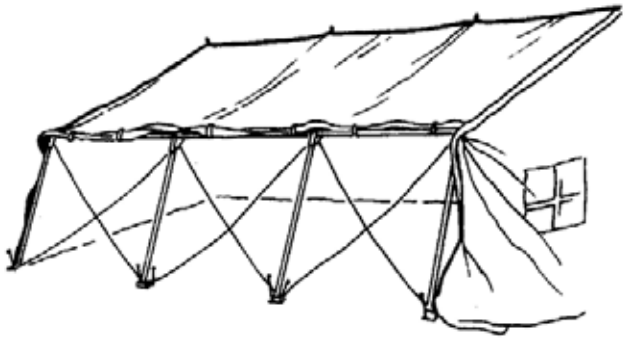
4. Secure eave and foot straps on the raised side.

5. Attach the front and rear walls to the centre sections along the roof line only.
6. Raise the other side of the tent and align legs.
7. Attach save straps (straps on the underside of the canvas that attach to the purlins as illustrated in Figure 10) and bracing cables (support cables as illustrated in Figure 11) but do not tighten.



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 2-8), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 10 Save Straps



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 2-8), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

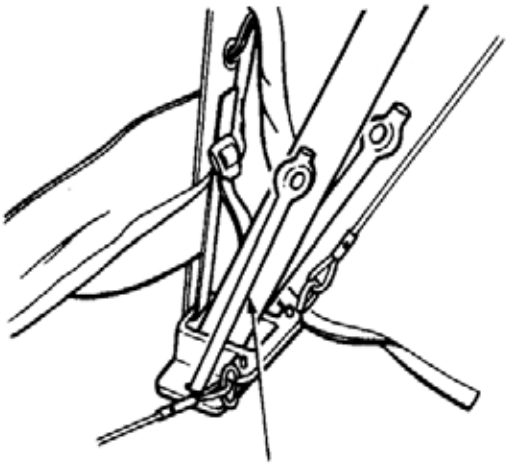
Figure 11 Bracing Cables

8. Complete lacing the end walls to the centre sections.
9. Raise the other side and adjust the positioning and alignment of the arch legs to achieve a smooth canvas fit.

ANCHOR

The following steps outline the procedure for anchoring the modular tent to the ground:

1. Secure the frame to the ground. Hammer in the steel pegs (two per foot), working from the outside of the tent, so that the pegs are angled inwards (to prevent frame lifting as illustrated in Figure 12).



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 2-8), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure 12 Drive in Pegs

2. Tighten bracing cables or bracing straps to maximum tension.
3. Attach the foot strap, cinching to the maximum.
4. When using bracing cables, connect the vertical hold anchors with the corresponding D rings at the anchor points along the ground line of the canvas.
5. Drive the pegs into the ground under the sod cloth so that the side wall canvas is taut.
6. Connect the sod cloth flaps with the toggles and loops at the corners and along the sides. Place sod, snow or other suitable material on the sod cloths to prevent the wind from getting underneath them.

A trench is sometimes required when the tent is pitched on poor draining ground such as a flat, clay or heavy soil surfaces or shallow soil over bed rock. Sandy soils or areas which slope off normally do not require drainage trenches. The trench should be 20 cm wide by 15 cm deep. Slope the trench so that it drains away from the tent. Dig outlet drains at the lowest points of the trench, ensuring that they do not interfere with pedestrian or vehicular movement.

Only dig a trench if the situation requires.

TEARING DOWN

The reverse order for erecting is used to tear down a modular tent. The steps are:

1. Loosen cables and ground anchors and remove (if wind is not too strong), otherwise leave until the tent is lowered.
2. Remove material from the sod cloth.
3. Release all straps and lacing up to the eave purlins.

4. Lower the tent one side at a time.
5. Unlace tent walls and sections and remove from frame.
6. Dismantle frame (reverse procedure).

Ensure that arrangements are made to clean and dry the equipment, if required, at the earliest opportunity.

PACKING

Lay out the canvas with the outer surface facing the ground, for ease of cleaning. A diagram of the packing procedure is located at Attachment A. There are different methods for folding modular tent canvas; check with the local supply section when signing out the tentage.

CONFIRMATION OF TEACHING POINT 1

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

Teaching Point 2 — **Explain and demonstrate erecting, tearing down and packing a 5- or 10-person Arctic tent.**

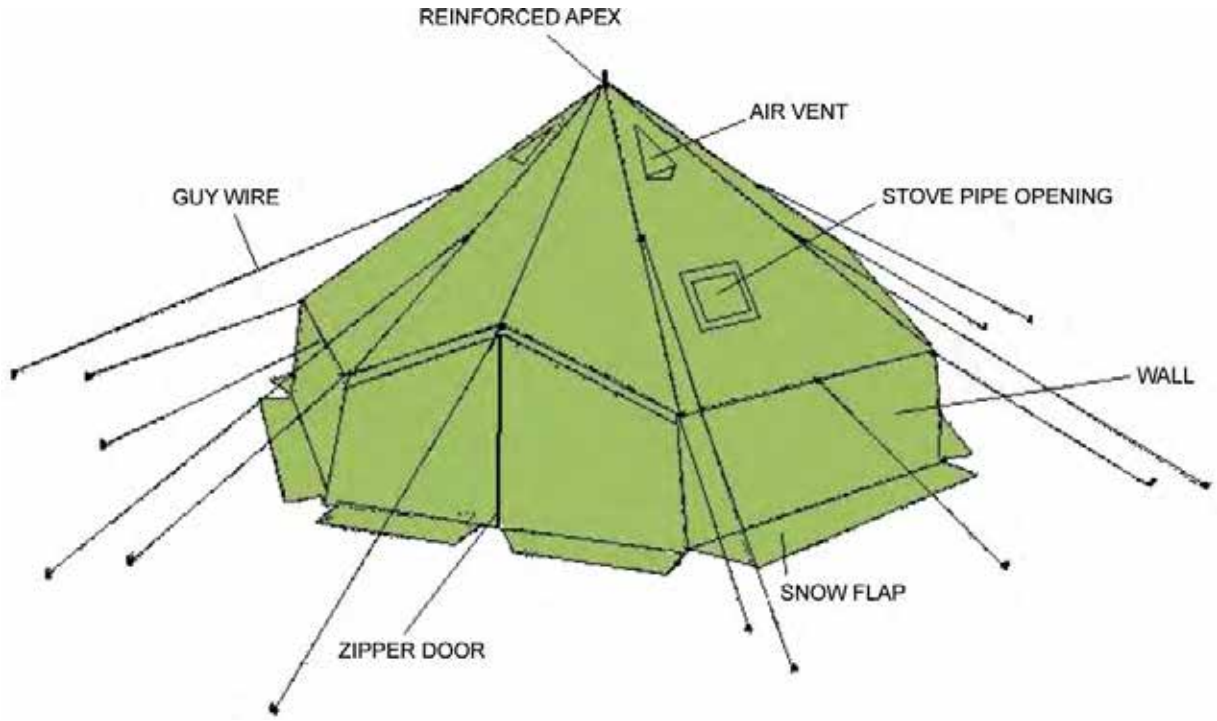
Time: 30 min — Method: Demonstration

These descriptions and instructions will be given as the tent is being erected, torn down and packed.

If the Arctic tent is going to remain erected for the duration of the exercise instruct tearing down and packing at the end of the exercise.

COMPONENTS OF A 5- OR 10-PERSON ARCTIC TENT

The 5- and 10-person Arctic tents are bell-shaped with a pentagonal base. Each wall section of the pentagon has a snow flap attached to the bottom portion of its panel. The tent consists of an inner and an outer portion. The inner portion is most commonly used for cadet training and consists of a zipper door, base tie-down points, air vents, stove pipe openings and a reinforced apex for pole insertion. The tent is supported by a single telescopic centre pole and 16 (10-person) or 10 (5-person) guy wires. The guy wires are pegged down with lightweight alloy or plastic pegs.

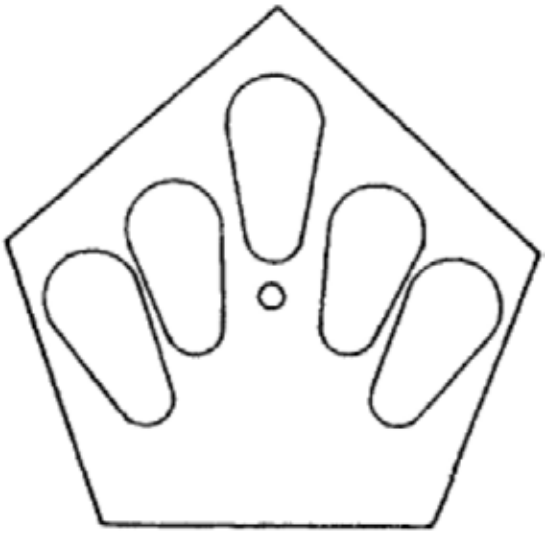


Note. Created by D Cdts 3, 2007, Ottawa, ON: Department of National Defence.

Figure 13 10-Person Arctic Tent Parts

Note. From Hero Army Surplus, Army Tents, by heroarmysurplus.com, 2007. Copyright 2007 by heroarmysurplus.com. Retrieved December 2, 2007, from http://heroarmysurplus.com/index.php/cPath/116?osCsid=jncvpsk59lech7i4chhja975q6

Figure 14 5-Person Arctic Tent

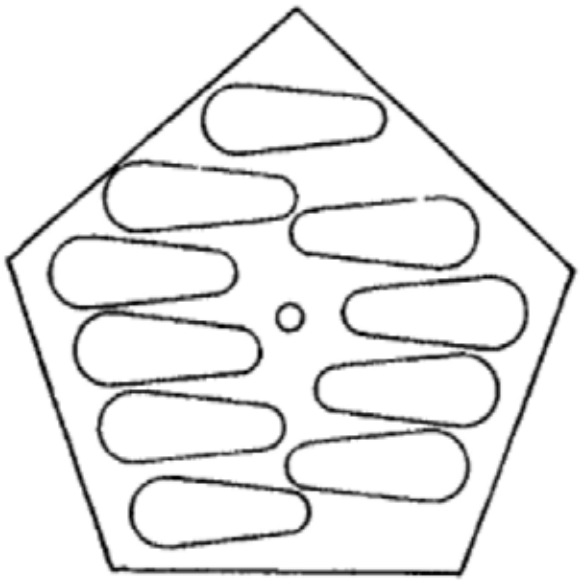


Note. From Arctic and Sub-Arctic Operations, Part 1 (p. 3-11), by DND Canada, 1974, Ottawa ON: Department of National Defence. Copyright 1974 by DND Canada.

Figure 15 5-Person Arctic Tent Sleeping Arrangement

Note. From Hero Army Surplus, Army Tents, by heroarmysurplus.com, 2007. Copyright 2007 by heroarmysurplus.com. Retrieved December 2, 2007, from http://heroarmysurplus.com/index.php/cPath/116?osCsid=jncvpsk59lech7i4chhja975q6

Figure 16 10-Person Arctic Tent



Note. From Arctic and Sub-Arctic Operations, Part 1 (p. 3-12), by DND Canada, 1974, Ottawa ON: Department of National Defence. Copyright 1974 by DND Canada.

Figure 17 10-Person Arctic Tent Sleeping Arrangement

ARCTIC TENT INSPECTION

The tent must be inspected to ensure the following faults are not present:

- Reinforced ring on apex damaged or torn.
- Air vents are stuck closed or damaged.
- Panels have tears, holes, broken threads or seams.
- Guy wires or loops are either damaged or missing.
- Broken or frayed guy wires or guy wire loops.
- Stove pipe opening is damaged or missing.
- Zipper on the outer door is broken.
- Snow flaps with eyelets are torn away from the walls.
- Drying line keepers are torn away from the seams.
- Toggles are missing.
- Telescopic pole (10-person tent) sections have bends or splits or the pole keeper pin is missing.
- Tent pole (5-person tent) has bends or splits and do not fit together properly.
- Base plate has cracks and, in the case of the 5-person tent, the base plate keep pin is missing.
- Pegs have broken points or bends.

ERECTING

Explain and demonstrate the following. Have the cadets assist as required.

The only difference in erecting these two tents is the number of guy wires. On a 5-person Arctic tent there are 5 wires and on a 10-person Arctic tent there are 16. The following outlines the steps to take for erecting a 5- or 10-person Arctic tent:

1. Choose a site for the tent.
2. Spread the tent out on the ground with the outside facing up.
3. Ensure the zipper is closed on the front door.
4. Check if the liner is in place; usually it is not in place in a new tent.
5. If the liner is not in place, follow these steps:
   (a) Spread out the liner above the tent with the inside of the tent facing up.
   (b) Attach the top and bottom stove pipe toggles of the liner to the tent.
   (c) Attach the remaining toggles of the liner to the tent. Use the corners of the tent as check points to make sure a toggle was not missed.
   (d) Thread the lower drying line through the drying line keepers.
6. Peg the corners of the Arctic tent.
7. The tent pole will be folded in two. Straighten and lock it into position.
8. Take the pole and base plate under the canvas, going through the door and inserting it into the centre eye (reinforced apex) of the tent.
9. Secure the base of the pole onto the base plate and have the pole person hold the pole upright.
10. Drive the corner pegs into the ground before erecting the pole.
11. Have the pole person extend the pole until the skirt and snow flaps are level with the ground. Use the pegs as a guide; they should be pulled out during this step.
12. Lift the shackle and extend the pole. Be careful of the shackle pinching the pole person's fingers.
13. Lock the shackle into place to secure the height of the tent.
14. Pull on each of the lower guy wires and extend them in line with the seams of the tent.
15. Set each guy wire will have an adjuster on it; adjuster to the middle position.
16. Peg the guy wires to the ground using heavy duty pegs.
17. Adjust the guy wires to remove any sag in the lower portion of the tent. The tent should be even in height all the way around.
18. Repeat steps 14–16 with the upper guy wires. The tent guy wires should never cross with other tents.

19. Adjust and tighten all wires and prop up the door wire if necessary.
20. The two door eave wires can be propped up by placing the wire over an improvised pole, tree branch or other object higher than the door entrance. This keeps the doors from sagging and makes it easier to get in and out of the tent and gives the tent greater stability.

TEARING DOWN

Use the following steps to tear down an Arctic tent:

1. Have the pole person enter the tent and hold the pole.
2. Pull out the pegs one at a time and roll up the guy wires and tie them off.
3. Have the pole person lower and remove the pole.

PACKING

Use the following steps to pack an Arctic tent:

1. Lay out the tent with the tent door up and in the centre with zippers closed and remove any debris.
2. Ensure there are no double folds on the underside.
3. Hold the apex securely. The first long fold is made by folding the wings to the centre, with the pegs straight up and down.
4. Straighten and flatten out the Arctic tent.
5. Fold in snow flaps across the base.
6. Make the second long fold, repeating the action for the first long fold.
7. Straighten and flatten out the Arctic tent.
8. Make the third long fold, repeating the action for the first long fold.
9. Straighten and flatten out the Arctic tent.
10. Make the forth long fold by flipping the folds one on top of the other.
11. Make the first cross-fold; fold in the base to the top of the wall.
12. Make the second cross-fold by folding the apex into the base of the inserted pole section, allowing approximately 10 cm of loose fold at the base of the pole section to avoid wear and tear. The top of the pole should be offset.
13. Make the third cross-fold by placing the previous two folds one on top of the other.
14. Insert the tent, base plate and pegs into the bag.
15. Place the remaining two pole sections in the bag beside the tent.
16. Tie up the top of the tent bag.

CONFIRMATION OF TEACHING POINT 2

The cadets' observation of the demonstrations will serve as the confirmation of this TP.

Teaching Point 3 **Explain and demonstrate erecting, tearing down and packing a civilian-pattern tent.**

Time: 20 min Method: Demonstration

These descriptions and instructions will be given as the tent is being erected, torn down and packed.

If the civilian-pattern tent is going to remain erected for the duration of the exercise instruct tearing down and packing at the end of the exercise.

SELECTING A CIVILIAN-PATTERN TENT

To select a suitable civilian-pattern tent, consider the number of people it needs to accommodate, seasons during which it is being used, weather conditions that may be encountered, the weight of the tent and required features.

Seasons and Conditions

Three-season tents. Designed to offer good ventilation in the spring, summer, and fall, and provide sturdy weather protection in everything but heavy snowfalls and very high winds. Many three-season tents have mesh inner bodies, which reduce condensation, and can often be used without the fly for a cool, bug-proof shelter on hot nights. Three-season tents are airier, less expensive, lighter, more compact and roomier than four-season tents. Their versatility makes them popular with backpackers, paddlers, and cyclists.

Note. From MEC Funhouse 4 Tent, by MEC.ca, 2007, Copyright 2007 by MEC.ca. Retrieved December 2, 2007, from http://www.mec.ca/Products/product_listing.jsp?FOLDER%3C%3Efolder_id=2534374302702837&bmUID=1196614958520

Figure 18 Three-Season Tent

Four-season tents. Built to protect in extreme weather. They usually come with many poles and have low, curved shapes to shield high winds and reduce snow build-up. Extra guy wires provide more staking options. Fabrics tend to be heavier, with thicker waterproof coatings that make them more weatherproof, but less ventilated, and more susceptible to interior condensation. This additional protection means greater weight and packed size, and may be inappropriate for anything other than ski touring, winter camping, or mountaineering.

Note. From MEC Mondarack Tent, by MEC.ca, 2007, Copyright 2007 by MEC.ca. Retrieved December 2, 2007, from http://www.mec.ca/Products/product_listing.jsp?FOLDER%3C%3Efolder_id=2534374302702837&bmUID=1196614958520

Figure 19 Four-Season Tent

WEIGHT

Tent weights are described as “minimum weight” and “packaged weight”. The minimum weight includes the tent and frame, and the fewest pegs and guy wires necessary to properly set up the tent. Packaged weight includes the full tent, instructions, stuff sacks, repair swatches, all guy wires and pegs. Conditions permitting, weight can be saved by leaving some pegs and components at home, and improvising with materials available at the site.

FEATURES

Tent footprints. These are groundsheets that are custom-fit to the tent. Groundsheets protect tent floors from abrasions, increase waterproofness, and help insulate from the cool ground. Most tents have pre-made footprints, which are sold separately.

Vestibules. This is an excellent way to increase the liveability of a tent. They are useful for storing gear, to peel off wet clothing or put on boots. A pole-supported vestibule will be heavier, but generally larger and more storm-proof.

Explain and demonstrate the following. Use cadets to assist as necessary.

ERECTING

Setting up the Main Body

Use the following steps to set up the main body of a civilian-pattern dome tent:

1. Remove sharp objects that might puncture the tent floor. A footprint beneath the structure is not necessary for a waterproof tent, but it reduces long-term wear on the tent floor.

2. Assemble all poles carefully.

Shock-corded poles, (bungee cord) are meant to keep pole sections in the proper order, not as an automatic assembly mechanism for poles. Do not hold one section while whipping the rest of the pole back and forth, or toss the poles into the air; either procedure excessively stresses the pole joints and shock cord. Instead, fit poles together section by section, making sure that each piece slides completely into the next. Forcing an improperly assembled pole can damage the pole and / or the tent body and fly.

3. Lay the tent body flat. In windy conditions, peg all the floor corners before proceeding.
4. Lay the poles on top of the tent body so that each one crosses diagonally from one corner to the opposite corner; the two poles should cross in the centre to form an X.
5. Attach the pole clips to the canopy.
6. Fit the pole ends into the grommet tabs at the four corners of the tent.

Have one person lift the top of the tent to loft it up as the tension can cause the other poles to pop out. This is the stage when the greatest stress can be placed on the poles. There is often more than one grommet on each webbing tab to increase or decrease the tautness of the tent to compensate for fabric slackening or tightening caused by changes in humidity. When first erecting the tent, it is best to use the outermost (loosest) grommet on each tab.

7. Starting at a point over one of the doors, attach the clips on the tent to the poles.
8. Peg out the corners of the tent.

Most tents are colour-coded to help users erect them.

Attaching the Fly

1. Drape the fly over the tent so that the doors in the fly line up with the doors in the canopy.
2. Attach the Velcro wrap-ties to secure the fly onto the poles. They are usually on the underside of the fly on most tents. Attaching these wrap-ties is very important for strengthening the tent. The wrap-ties allow the poles to reinforce one another in a series of trusses; they also connect the corner guy wire attachment points directly to the poles for maximum stiffness when these guy wires are rigged.
3. Fit all of the grommet tabs on the fly over the appropriate pole ends.

Staking and Guying Out the Tent

Attach, peg out, and tension the four corner guy wires. Rather than thick, heavy poles for strength, most tents employ light, sturdy guy wires as part of their structure. This keeps the tents weight low. The design also makes it very important to securely rig the guy wires in any amount of wind. Not doing so could cause the tent to move in the wind (as with any tent, shelter from trees, rock, or snow walls will make for a quieter night under stormy conditions).

The pegs included with a tent are suitable for general use on relatively soft ground. On very hard-packed ground, use stakes that can withstand the force needed to secure them. On snow, sand, or other loose-packed surfaces, wider T-stakes or aluminum snow stakes will hold better; these stakes hold best buried horizontally. Improvise with other stakes (hiking staffs, ice axes, branches, rocks, trees), using the tents stake loops or cord as required.

Ventilating the Tent

Proper ventilation is the key to minimizing condensation in any tent. Some points to consider are:

- Keep fabric doors open as widely as the prevailing weather permits.
- If bugs are not a problem, leave mesh doors open.
- Open each door from the top down; warm, moist air rises and escapes through high openings.
- If the design of the tent allows, open it at either end or both sides to allow air to flow through.
- On very hot nights, when there will be no rain or dewfall, leave the flysheet off and use the inner tent to keep out bugs.

TEARING DOWN AND PACKING

The most important consideration in taking down a tent is not to stress the poles and fabrics, by following these steps:

1. Disconnect guy wires and release the tension from the tent.
2. Release all the poles. If the tent has pole sleeves, push the poles out of the sleeves instead of pulling them out.
3. Fold each pole in half first, and then fold down towards the outsides, two sections at a time. To minimize the stress on the bungee cord in the poles and to speed disassembly,
4. Remove all of the components from one another prior to storing. A wet tent should be dried prior to packing as the moisture damages the tent over time.
5. Fold and roll the tent rather than stuffing it into its sack. Rolling makes a smaller package, and causes fewer creases in the polyurethane coating. The tent and poles may be carried separately for easier packing or load sharing.

CARE AND MAINTENANCE

Protecting the Tent

Ultraviolet (UV) damage is the largest hazard for tents. Fabrics should not be exposed to sunlight for extended periods of time; this eventually results in colour fading and fabric failure. The uncoated fabrics of the tent canopy are most susceptible to damage from UV and should be covered by the more durable fly. If extended exposure is unavoidable, cover the tent with a tarp or a sheet of nylon.

Lighting the Tent

Using a candle lantern in a tent carries definite risks. Never leave a candle lantern burning unattended; always watch for fire hazards from overheating fabrics or spilling wax. Spilling wax can be dangerous, particularly to eyes and other sensitive areas. Use candle lanterns wisely and with extreme caution. Cooking in a tent is strongly discouraged because of fire hazards and carbon monoxide inhalation risks. Unlike campfire smoke and other fumes, carbon monoxide can render someone unconscious without warning.

Eating in the Tent

Mop up spills promptly with water. Many foods, particularly acidic ones like fruit or juices, can weaken synthetic fabrics over time. It is best to eat and store food away from a tent to avoid attracting animals.

Cleaning the Tent

Clean the tent by hand while it is set up, using a sponge, a mild non-detergent soap, and warm water. Rinse thoroughly. Do not dry clean, machine wash, or machine dry. Stubborn stains like tar can be left in place and dusted with talcum powder to prevent transfer to other areas of the tent in storage. After cleaning, a spray-on water repellent designed for synthetic fabrics may be applied to the flysheet if surface water repellent is weakened. This is apparent when water droplets no longer bead on the fabric. If the poles are exposed to salt or salt water, rinse them in fresh water and allow them to dry before storing (while aluminum does not rust, it can become brittle through unseen corrosion over time).

CONFIRMATION OF TEACHING POINT 3

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

END OF LESSON CONFIRMATION

The cadets' participation in erecting, tearing down and packing a modular tent will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

It is important for the cadets to be able to erect a modular tent because they are often used during survival exercises. A cadets' understanding of the erecting, tearing down and packing of tents allows them to better assist in the set-up of the camp during an aircrew survival exercise.

INSTRUCTOR NOTES / REMARKS

Every cadet, as a member of a group, should be given the opportunity to erect, tear down and pack a modular tent during the exercise.

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

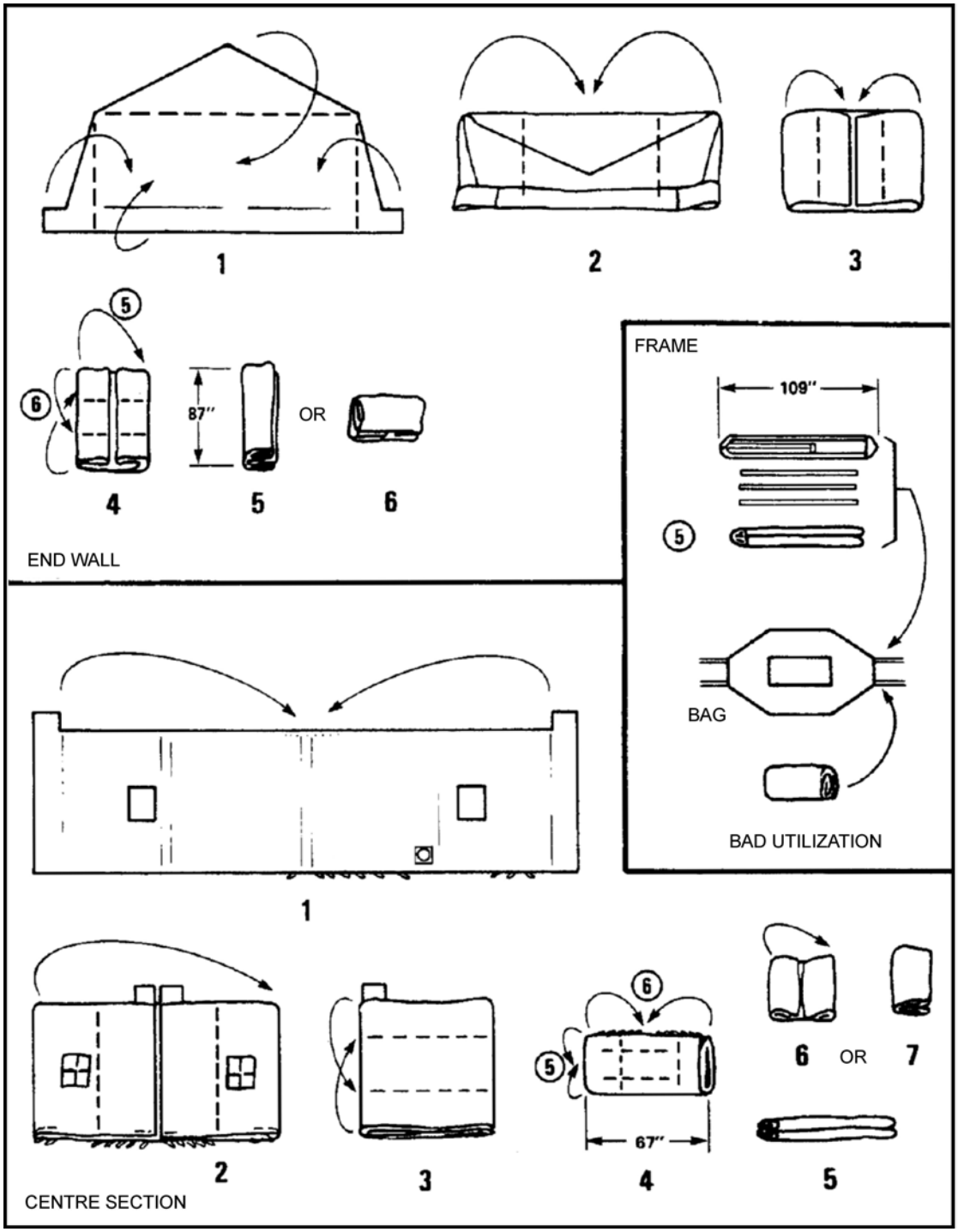
REFERENCES

A3-012 B-GG-302-002/FP-001 DAD (1982). *Basic Cold Weather training*. Ottawa, ON: Department of National Defence.

A3-059 C-87-110-000/MS-000 Canadian Forces. (1983). *Operational support and maintenance manual: Tent, main*. Ottawa, ON: Department of National Defence.

C3-003 ISBN 1-896713-00-9 Tawrell, P. (1996). *Camping and wilderness survival: The ultimate outdoors book*. Green Valley, ON: Author.

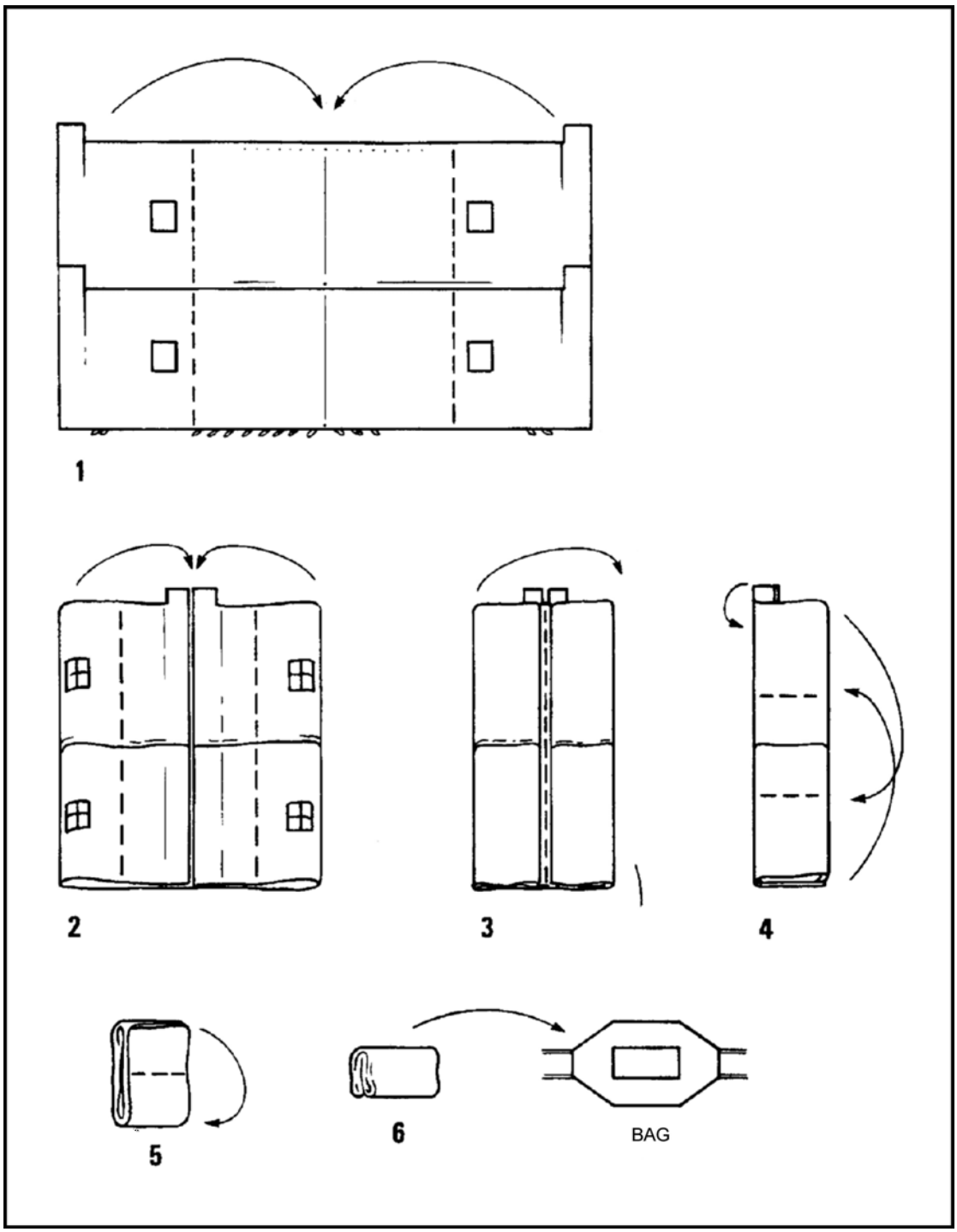
FOLDING A SINGLE TENT SECTION



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 2-17), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure A-1 Folding a Single Tent Section

FOLDING LACED TENT SECTIONS



Note. From Operational Support and Maintenance Manual for Tent, Main (p. 2-18), by DND Canada, 1983, Ottawa ON: Department of National Defence. Copyright 1983 by DND Canada.

Figure A-2 Folding Laced Tent Sections

ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 8

EO C190.01 – PARTICIPATE IN A PRESENTATION GIVEN BY A MEMBER OF A SURVIVAL ORGANIZATION / SEARCH AND RESCUE (SAR) COMMUNITY

Total Time:	60 min

THERE IS NO INSTRUCTIONAL GUIDE PROVIDED FOR THIS EO

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ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 9

EO C190.02 – TIE KNOTS AND LASHINGS

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-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Photocopy the Knot-Tying and Lashing Instructions, located at Attachments A and B, for each cadet.

Cut lengths of braided rope for the cadets to tie the knots. The rope should be 10 mm in diameter and 3 m in length. Each cadet will require two lengths of rope.

Cut lengths of cord for the cadets to tie lashings. The cord should be 4-mm in diameter and 3 m in length. Each group of six cadets require eight pieces of cord.

Collect poles from natural resources. Poles should be approximately 6 cm in diameter and 2 m in length. Each cadet will require one pole.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for TP 1 to present background material on rope terminology.

A demonstration and performance was chosen for TPs 2 and 3 as it allows the instructor to explain and demonstrate tying knots and lashings while providing an opportunity for the cadets to practice and develop these skills under supervision.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

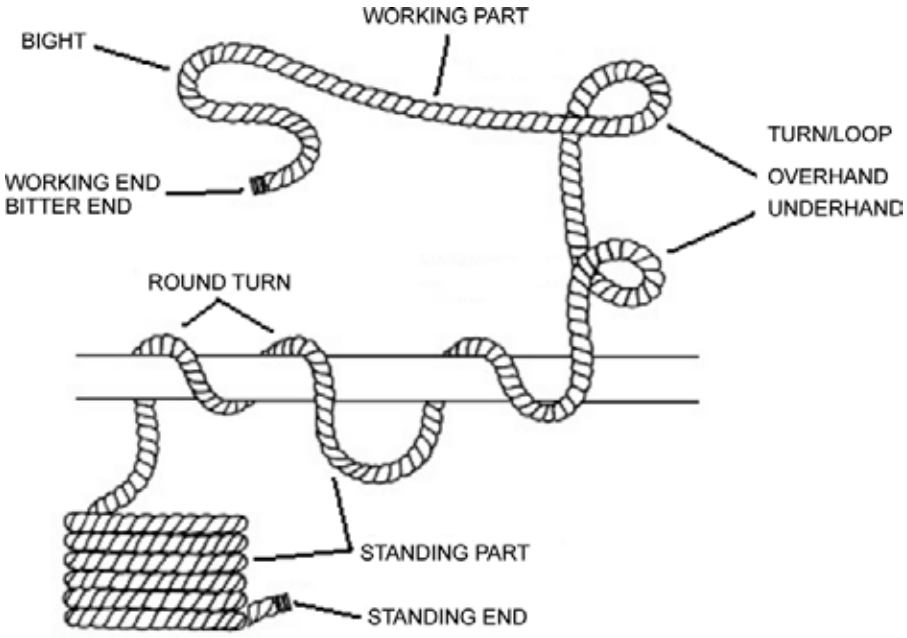
By the end of this lesson the cadet shall have tied knots and lashings.

IMPORTANCE

It is important for the cadets to know how to tie different knots and lashings in order to construct sturdy shelters, tents, snares and camp crafts.

Teaching Point 1 **Describe the parts of a rope.**

Time: 5 min Method: Interactive Lecture



Note. From Lost Knowledge Site, 2006, by Bryan Green. Retrieved March 6, 2009, from http://lostknowledgesite.com/BackToBasics/Knots/Knots.html

Figure 1 Parts of a Rope

PARTS OF A ROPE

The following definitions will assist cadets when tying each knot or lashing:

- The working end (bitter end) is the very end of the rope that is used for tying a knot.
- The working part (running part) is the short length of rope that is manipulated to make the knot.
- The standing part is the section of rope that usually “stands still” during the knot-tying process. Often it is the longer end that leads away from the loop, bight or knot.
- The standing end is the end of the rope opposite the end being used for tying a knot.
- The crossing turn or loop is a part of rope that crosses over itself. The working part can be over or under the standing part in a crossing turn.
- A bight is a loop in the rope that does not cross over itself.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS:

Q1. What part of the rope is called the working part?

Q2. What is a bight?

Q3. What is the standing end?

ANTICIPATED ANSWERS:

A1. The working part (running part) is the short length of rope that is manipulated to make the knot.

A2. A bight is a loop in the rope that does not cross over itself.

A3. The standing end is the end of the rope opposite the end being used for tying a knot.

Teaching Point 2 **Explain, demonstrate and have the cadets tie knots.**

Time: 25 min Method: Demonstration and Performance

For this skill lesson, it is recommended that the instruction take the following format:

1. Explain and demonstrate the complete knot while cadets observe.
2. Explain and demonstrate each step required to complete the knot. Monitor cadets as they imitate each step.
3. Monitor the cadets' performance as they practice the complete knot.

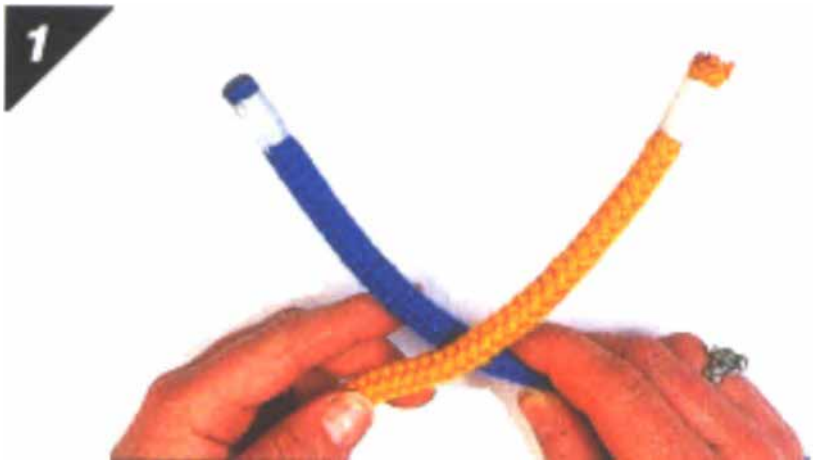
Note: Assistant instructors may be used to monitor the cadets performance.

KNOTS

Reef Knot. The reef knot is used for joining two ropes of equal diameter together. This knot can hold a moderate amount of weight and is ideal for first aid. It may be used when tying slings because the knot lies flat against the body.

Steps for Tying a Reef Knot

1. Place the left-hand working end on the top of the right-hand working end.



Note. From Pocket Guide to Knots and Splices (p. 98), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 2 Step 1

2. Bring the left-hand working end under the right-hand working end.

Note. From Pocket Guide to Knots and Splices (p. 98), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 3 Step 2

3. Place the working end that is now on the right, on top of the working end that is now on the left.

Note. From Pocket Guide to Knots and Splices (p. 98), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 4 Step 3

4. Bring the working end that is on top under the other working end so it comes out at the same place it entered the knot.

Note. From Pocket Guide to Knots and Splices (p. 98), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 5 Step 4

5. Pull tight to complete the reef knot.

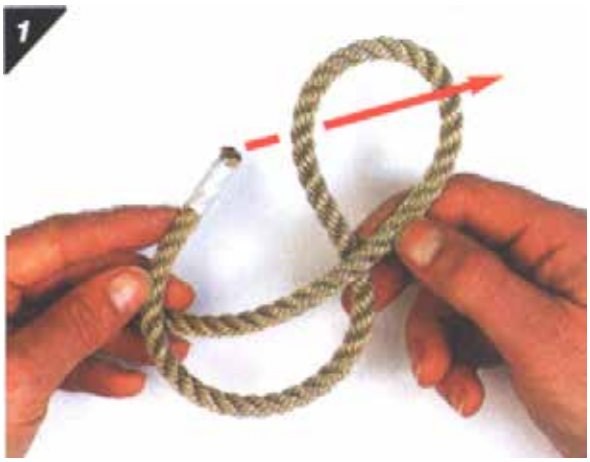
Note. From Pocket Guide to Knots and Splices (p. 98), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 6 Step 5

Figure-of-Eight Knot. The figure-of-eight knot is very simple and quick to tie. It makes an ideal stopper knot and is very easy to untie.

Steps for Tying a Figure-of-Eight Knot

1. Make a crossing turn with the working end passing under the standing part of the rope and then bring the working end over the standing part.



Note. From Pocket Guide to Knots and Splices (p. 44), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 7 Step 1

2. Tuck the working end up through the loop from behind, forming a figure-of-eight.

Note. From Pocket Guide to Knots and Splices (p. 44), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 8 Step 2

3. Pull tight to complete the figure-of-eight knot.

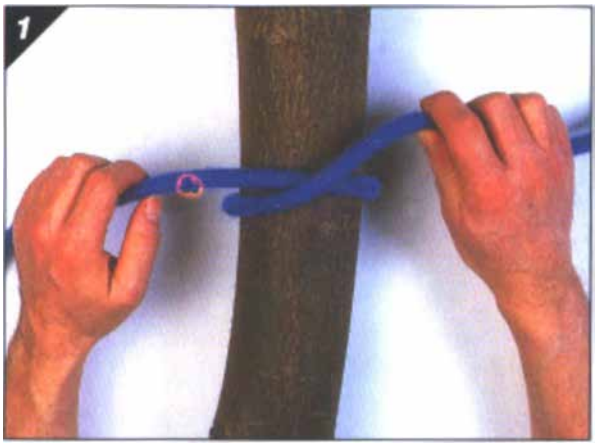
Note. From Pocket Guide to Knots and Splices (p. 44), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 9 Step 3

Clove Hitch. The clove hitch consists of two half hitches or crossing turns each made in the same direction. It is used to finish and start lashings and should not be used in a situation where the hitch has variable tension as it can work loose.

Steps for Tying a Clove Hitch

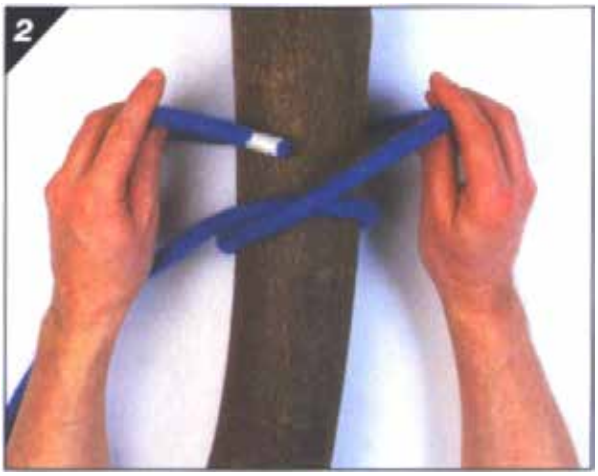
1. Make a turn around a pole / tree bringing the working end of the rope over and trapping the standing part of the rope. This makes the first half hitch.



Note. From Pocket Guide to Knots and Splices (p. 106), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 10 Step 1

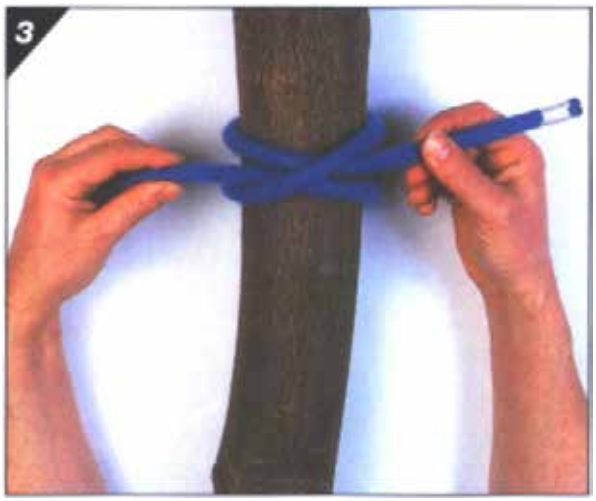
2. Bring the working end behind the pole / tree, above the first half hitch.



Note. From Pocket Guide to Knots and Splices (p. 106), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 11 Step 2

3. Put the working end under the turn just made. This gives the second half hitch and forms the clove hitch.



Note. From Pocket Guide to Knots and Splices (p. 106), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 12 Step 3

4. Pull tight to complete the clove hitch.

Note. From Pocket Guide to Knots and Splices (p. 106), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 13 Step 4

Bowline. The bowline is a very secure knot that will not slip, regardless of the load applied. Use this knot whenever a non-slip loop is required at the end of a line.

Steps to Tying a Bowline

1. A short distance back from the working end, make a crossing turn with the working part on top. Go on to form the size of the loop required.

Note. From Pocket Guide to Knots and Splices (p. 163), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 14 Step 1

2. Bring the working end up through the crossing turn. It goes under first, and then lies on top of the other part of the turn.

Note. From Pocket Guide to Knots and Splices (p. 163), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 15 Step 2

3. Bring the working end around behind the standing part and down through the crossing turn. A good way to remember this is: “the rabbit comes out of the hole, around the tree and back down the hole again”.

Note. From Pocket Guide to Knots and Splices (p. 163), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 16 Step 3

4. Pull tight by holding the working end and pulling on the standing part to complete the bowline.

Note. From Pocket Guide to Knots and Splices (p. 163), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 17 Step 4

Distribute Knot-Tying Instructions located at Attachment A to the cadets so they may practice the knots after the lesson.

CONFIRMATION OF TEACHING POINT 2

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

Teaching Point 3 **Explain, demonstrate and have the cadets tie lashings.**

Time: 25 min Method: Demonstration and Performance

For this skill lesson, it is recommended that the instruction take the following format:

1. Explain and demonstrate the complete lashing while cadets observe.
2. Explain and demonstrate each step required to complete the lashing. Monitor cadets as they imitate each step.
3. Monitor the cadets' performance as they practice the complete lashing.

Note: Assistant instructors may be used to monitor the cadets performance.

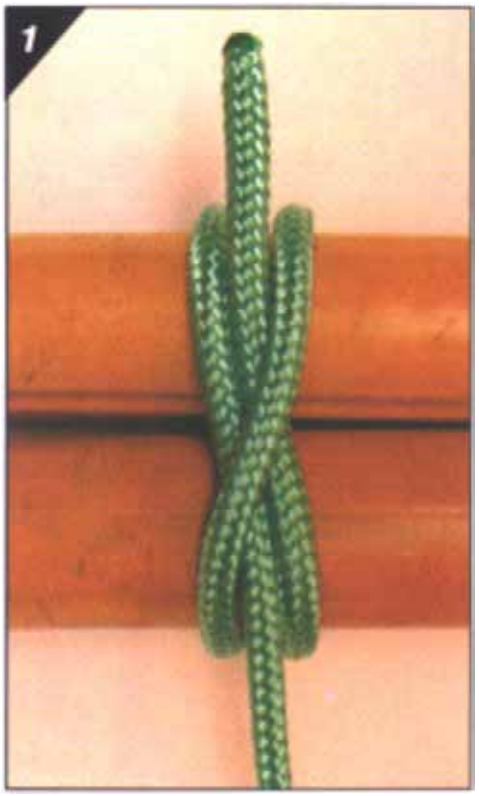
LASHINGS

Round Lashing. Sometimes called a sheer lashing, the round lashing has two distinct uses. First, it creates an "A" frame or set of using a single lashing. Second, two or three round lashings can be used to bind together a couple of poles to make a longer spar. To make an "A" frame, two poles are put side by side; the lashing is

made at one end. A slightly different approach is used to join two poles together to make a longer pole. The procedure is exactly the same, except the initial and final clove hitches are tied around both poles and there is no space left between the poles and no frapping is used. For extra strength to the spar, add extra lashings at the opposite end and middle of the adjoining poles.

Steps to Tying a Round Lashing

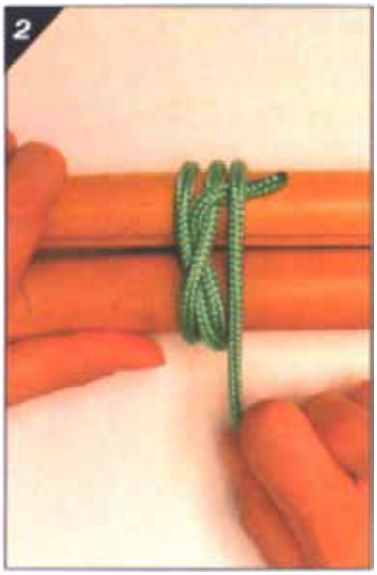
1. Start by making a clove hitch around both poles.



Note. From Pocket Guide to Knots and Splices (p. 184), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 18 Step 1

2. Wrap around both poles, trapping the end of the clove hitch.



Note. From Pocket Guide to Knots and Splices (p. 184), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

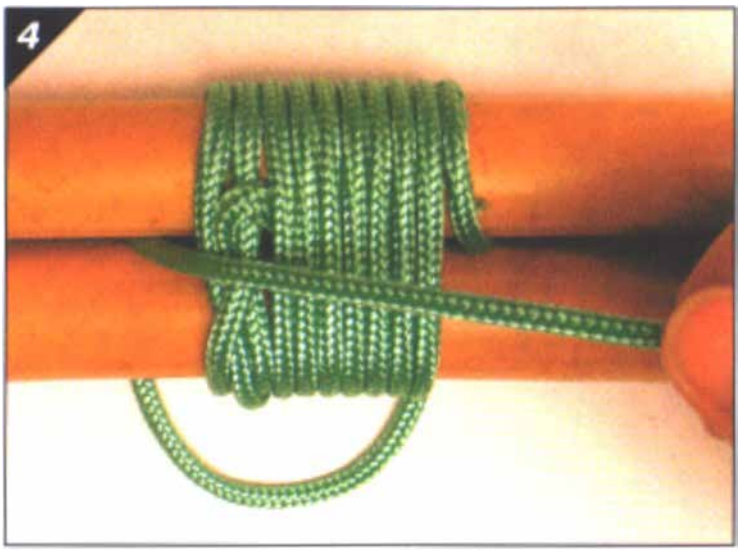
Figure 19 Step 2

3. Make eight to ten more turns round the pair of poles.

Note. From Pocket Guide to Knots and Splices (p. 184), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 20 Step 3

4. The lashing is finished with a clove hitch around both poles or a couple of frapping turns by bringing the end of the rope between the two poles.



Note. From Pocket Guide to Knots and Splices (p. 185), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

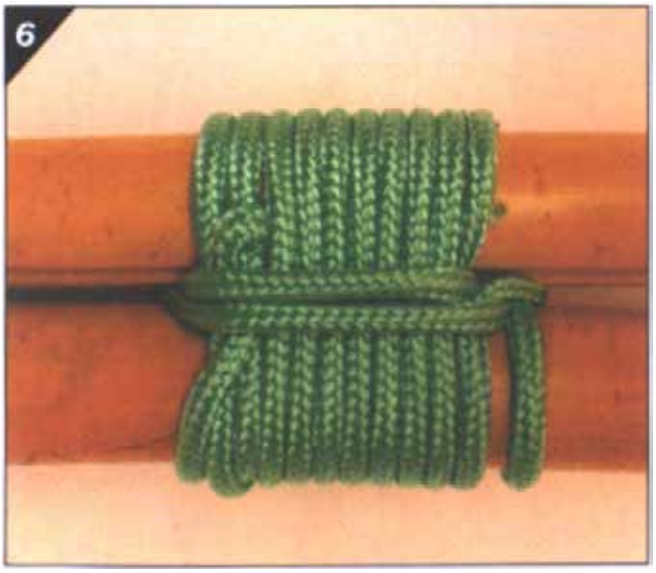
Figure 21 Step 4

5. Finish off with a clove hitch around one of the poles.

Note. From Pocket Guide to Knots and Splices (p. 185), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 22 Step 5

6. Pull tight to finish the round lashing with the poles parallel.



Note. From Pocket Guide to Knots and Splices (p. 185), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 23 Step 6

7. If being used for an "A" frame then open the poles.

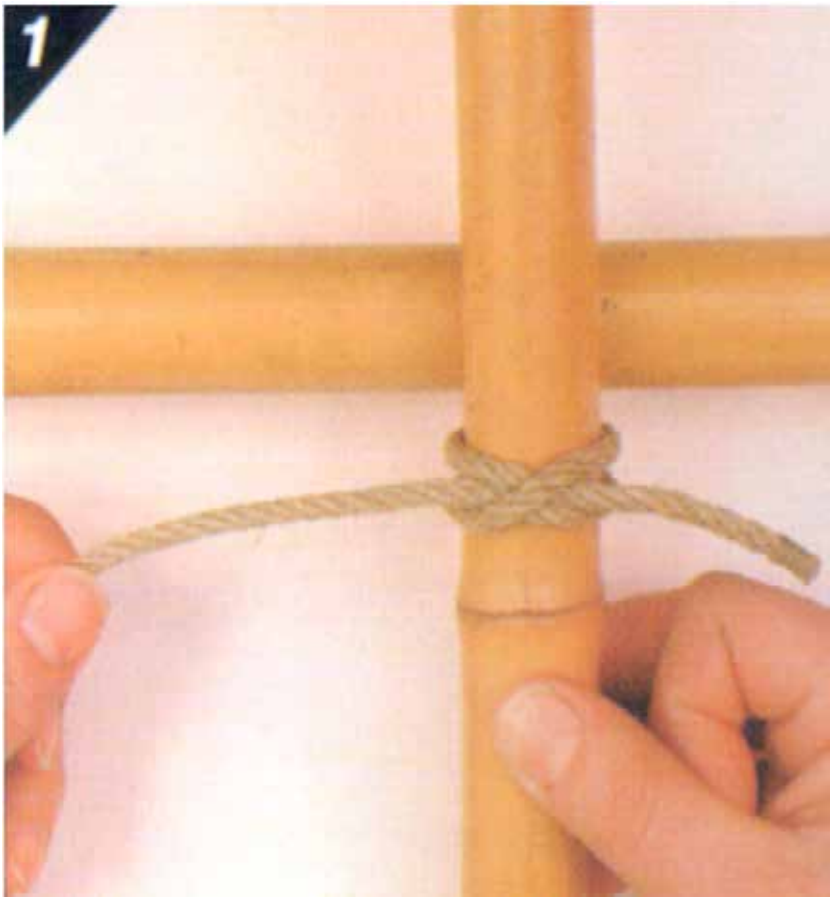
Note. From Pocket Guide to Knots and Splices (p. 185), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 24 Step 7

Square Lashing. A square lashing secures two poles together at 90 degrees and can be used in the construction of shelters and camp crafts. The cord used to make the lashing should be considerably smaller than the size of the poles. For the lashing to be effective, each turn must be pulled as tight as possible as it is made.

Steps to Tying a Square Lashing

1. With the vertical pole on top of the horizontal pole, make a clove hitch on the vertical pole just below the horizontal pole.



Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

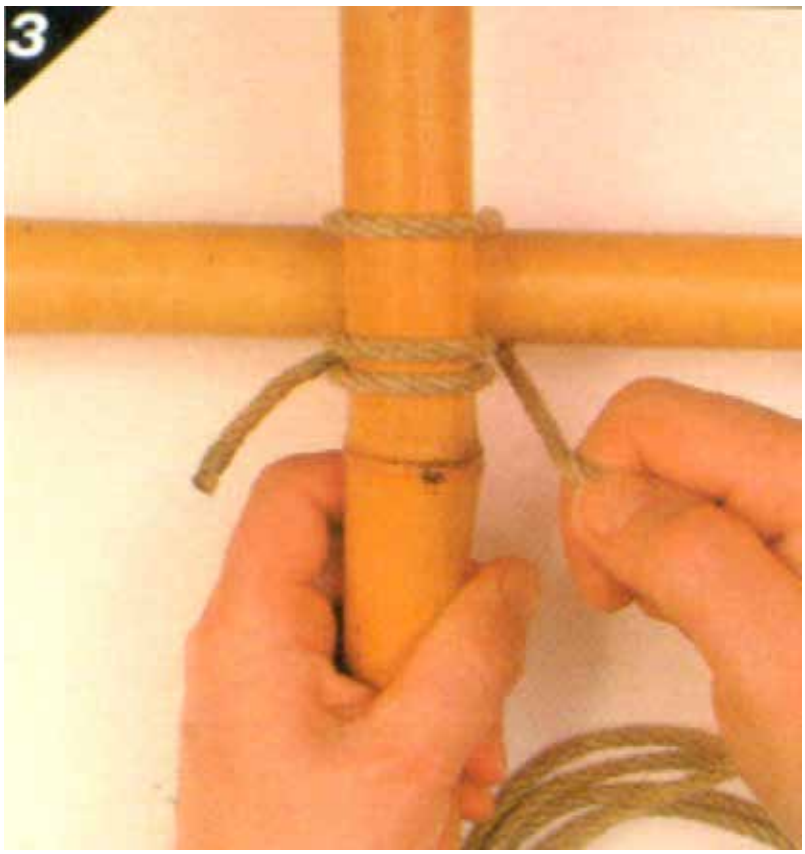
Figure 25 Step 1

2. Bring all the cord around behind the horizontal pole.

Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 26 Step 2

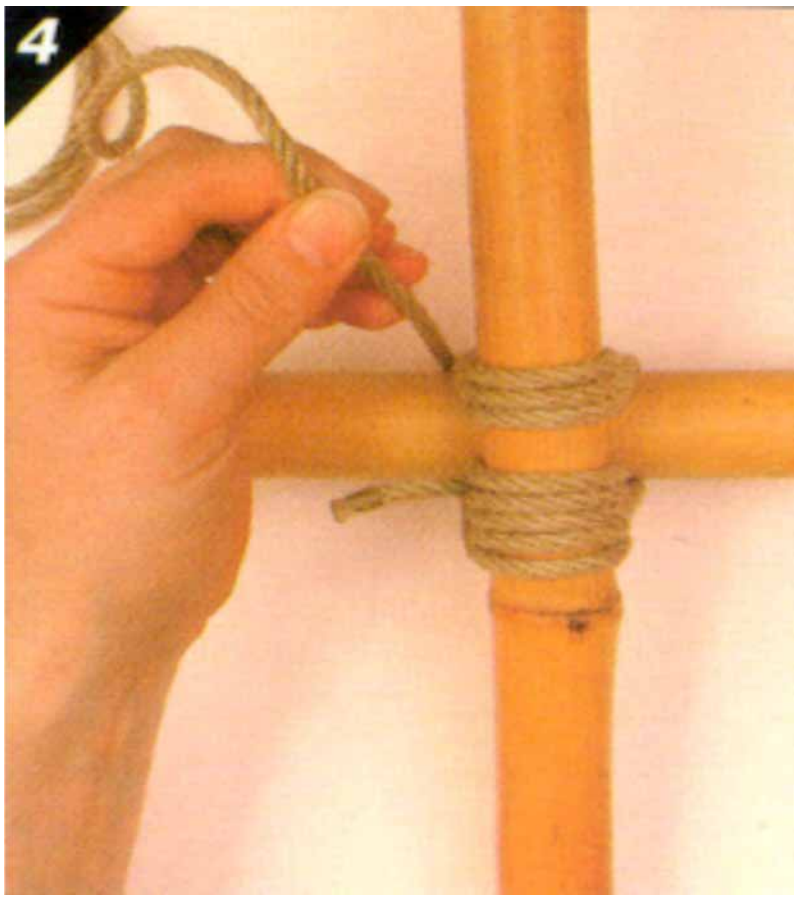
3. Bring the cord over the vertical pole and back behind the horizontal pole to the clove hitch. Pull tight.



Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 27 Step 3

4. Carry on making two or three more complete turns around the two poles, pulling tight after each turn.



Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 28 Step 4

5. After passing the clove hitch, bring the cord around the horizontal pole from behind and start to wrap around the junction between the two poles. These are frapping turns—pull them as tight as possible.

Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 29 Step 5

6. Make two frapping turns.

Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 30 Step 6

7. Finish off with a clove hitch around the horizontal pole.

Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 31 Step 7

8. Pull tight to complete the square lashing.

Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 32 Step 8

Figure-of-Eight Lashing. The figure-of-eight lashing is used to join three poles together to create a tripod. The tripod can be used for creating signal fires, shelters and camp crafts in a survival situation.

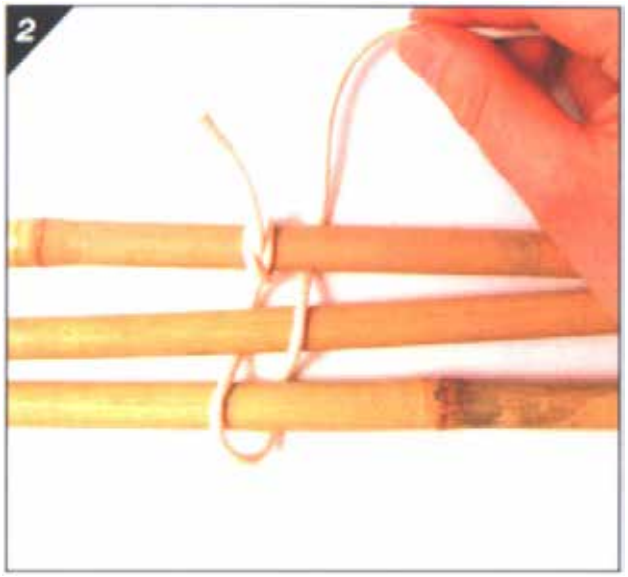
Steps to Lashing a Figure-of-Eight Lashing

1. Start with a clove hitch around one of the poles, and lead the rope under and over the other two poles.

Note. From Pocket Guide to Knots and Splices (p. 187), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 33 Step 1

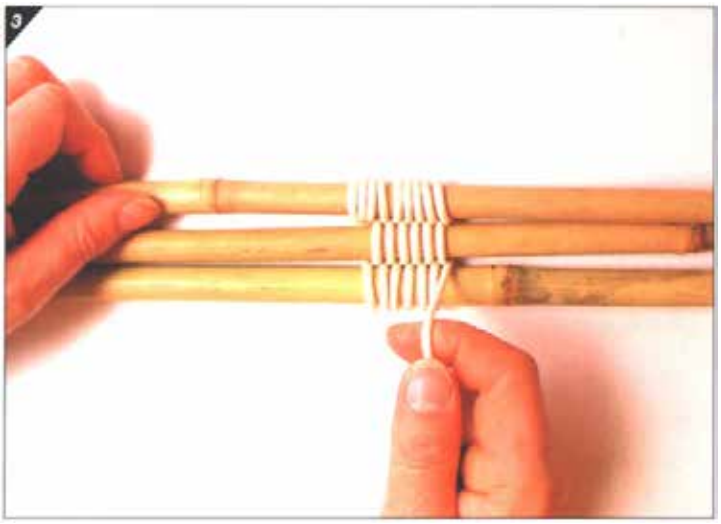
2. Go around the pole furthest away from the start and weave the rope back over and under.



Note. From Pocket Guide to Knots and Splices (p. 187), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 34 Step 2

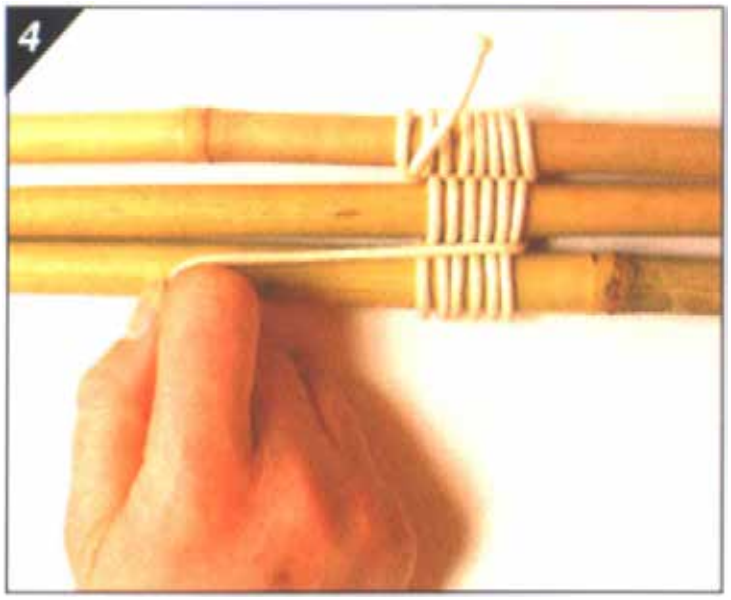
3. Continue to weave the rope in the figure-of-eight manner for seven or eight full passes before bringing the rope up between two of the poles.



Note. From Pocket Guide to Knots and Splices (p. 187), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 35 Step 3

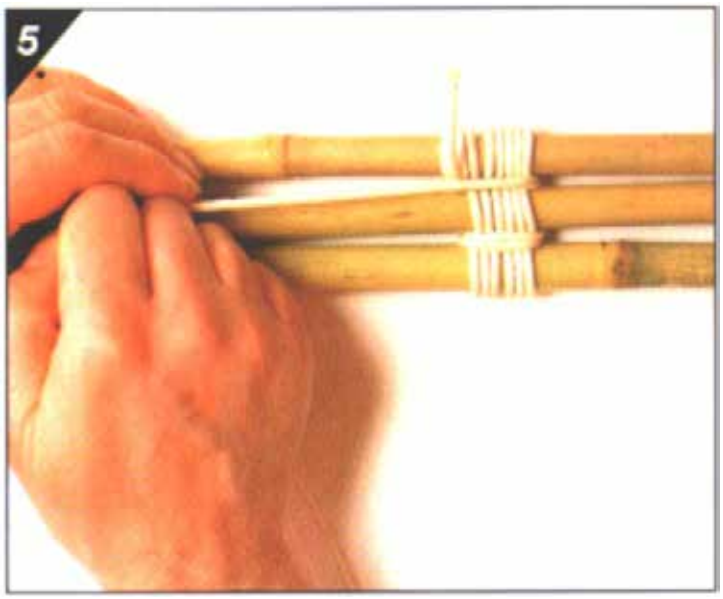
4. Pull the rope parallel to the poles and start to put in some frapping turns.



Note. From Pocket Guide to Knots and Splices (p. 188), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 36 Step 4

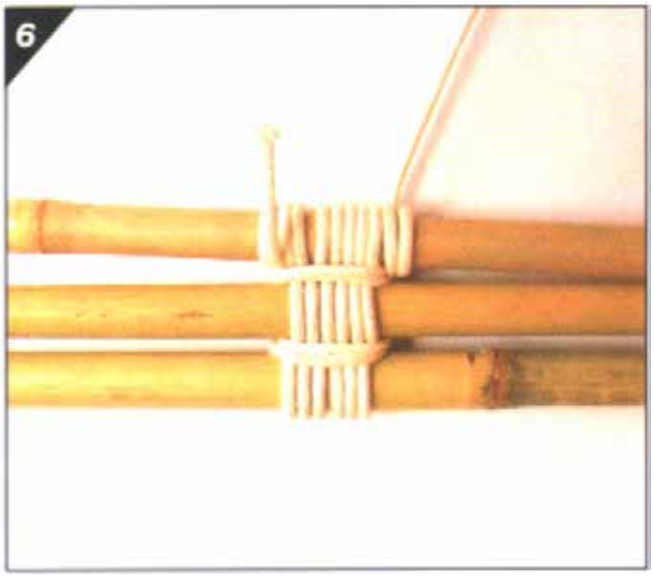
5. After making frapping turns between the first two poles move on to make frapping turns around the other pair of poles.



Note. From Pocket Guide to Knots and Splices (p. 188), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 37 Step 5

6. Finish off with a clove hitch around the pole from which you first started.



Note. From Pocket Guide to Knots and Splices (p. 188), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 38 Step 6

7. Open to create tripod.

Note. From Pocket Guide to Knots and Splices (p. 188), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure 39 Step 7

Distribute Lashing Instructions located at Attachment B to the cadets, so they may practice the knots after the lesson.

CONFIRMATION OF TEACHING POINT 3

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

END OF LESSON CONFIRMATION

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

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

It is important for the cadets to select the appropriate knot and lashing when constructing shelters, signal fires or camp crafts for safety and quality.

INSTRUCTOR NOTES / REMARKS

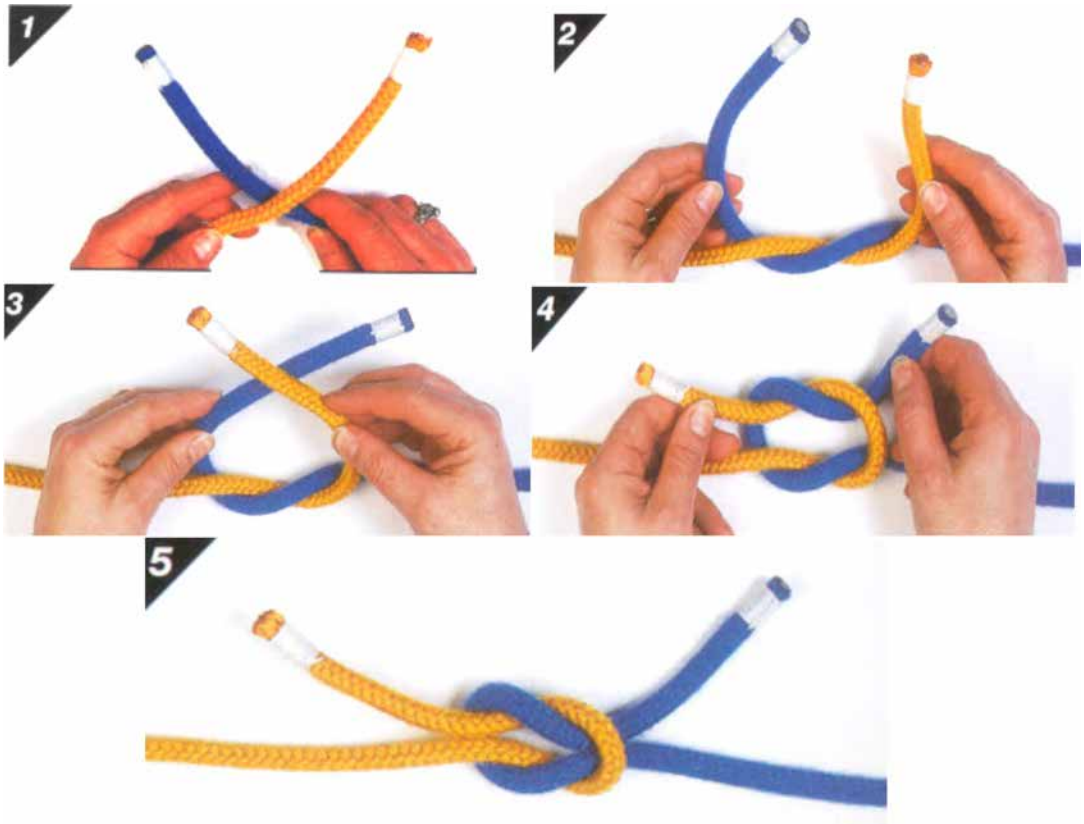
The cadet will require two 3 m lengths of 10 mm diameter braided rope to perform the required knots and lashings.

REFERENCES

C3-026 ISBN 1-55267-218-2 Pawson, D. (2001). *Pocket guide to knots and splices*. London, England: PRC Publishing.

KNOT-TYING INSTRUCTIONS

REEF KNOT



Note. From Pocket Guide to Knots and Splices (p. 98), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure A-1 Steps 1–5

1. Place the left-hand working end on the top of the right-hand working end.
2. Bring the left-hand working end under the right-hand working end.
3. Place the working end that is now on the right on top of the working end that is now on the left.
4. Bring the working end that is on top under the other working end so that working end that is moving comes out at the same place it entered the knot.
5. Pull tight to complete the reef knot

KNOT-TYING INSTRUCTIONS

FIGURE-OF-EIGHT KNOT

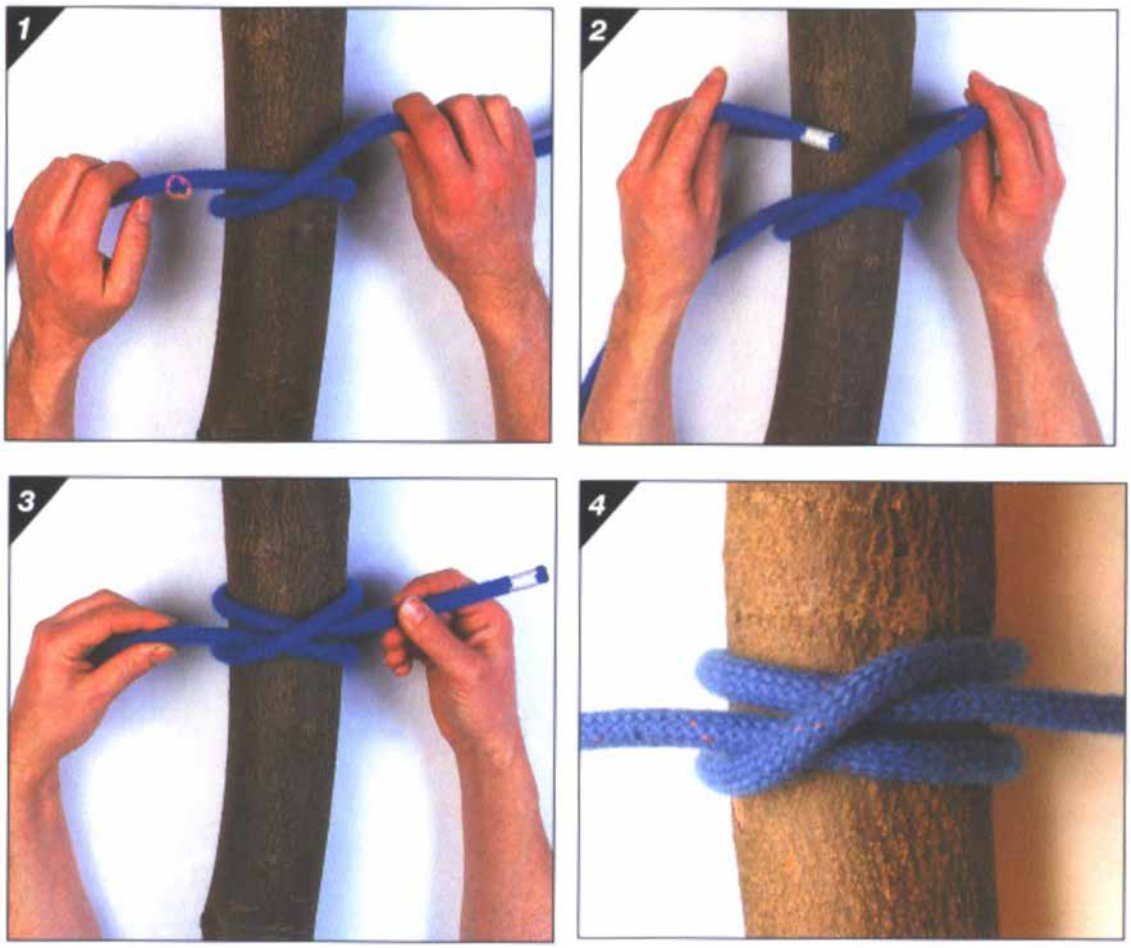
Note. From Pocket Guide to Knots and Splices (p. 44), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure A-2 Steps 1–3

1. Make a crossing turn with the working end passing under the standing part of the rope and then bring the working end over the standing part.
2. Now tuck the working end up through the loop from behind, forming a figure-of-eight.
3. Pull tight to complete the figure-of-eight knot.

KNOT-TYING INSTRUCTIONS

CLOVE HITCH



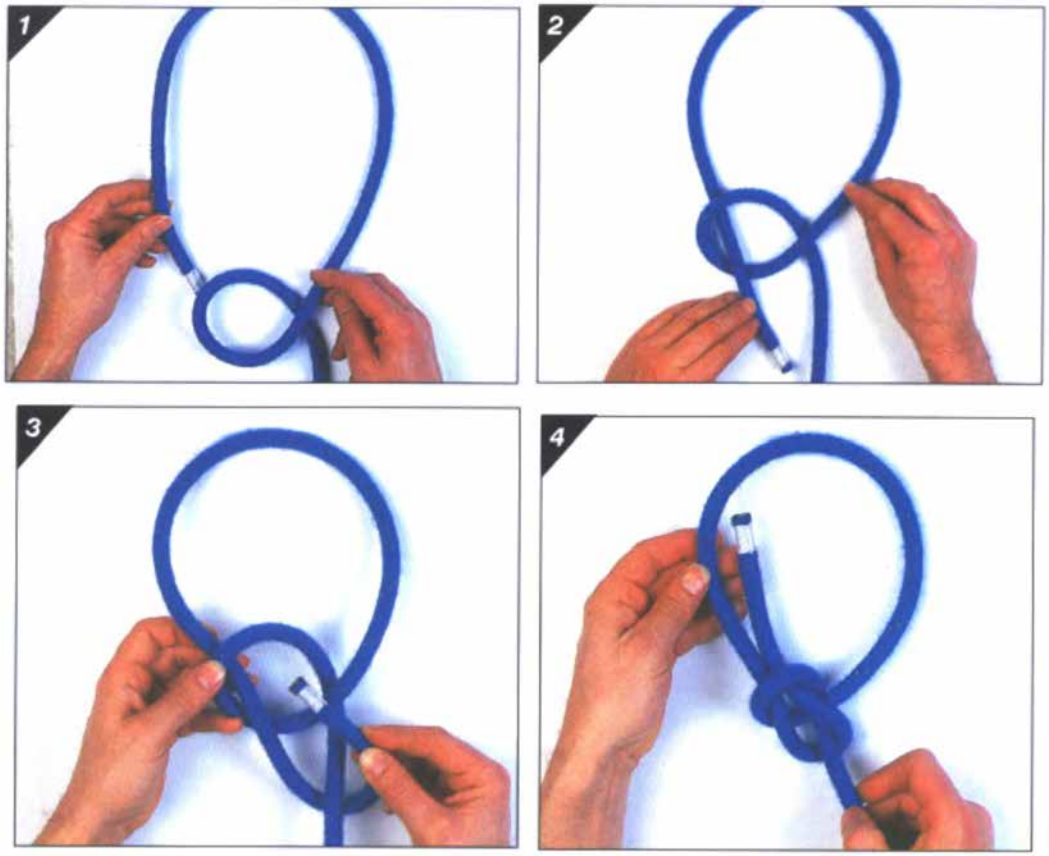
Note. From Pocket Guide to Knots and Splices (p. 106), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure A-3 Steps 1–4

1. Make a turn around the pole / tree bringing the working end of the rope over and trapping the standing part of the rope. This makes the first half hitch.
2. Bring the working end round behind the pole / tree, above the first half hitch.
3. Put the working end under the turn just made. This gives the second half hitch and forms the clove hitch.
4. Pull tight to complete the clove hitch.

KNOT-TYING INSTRUCTIONS

BOWLINE



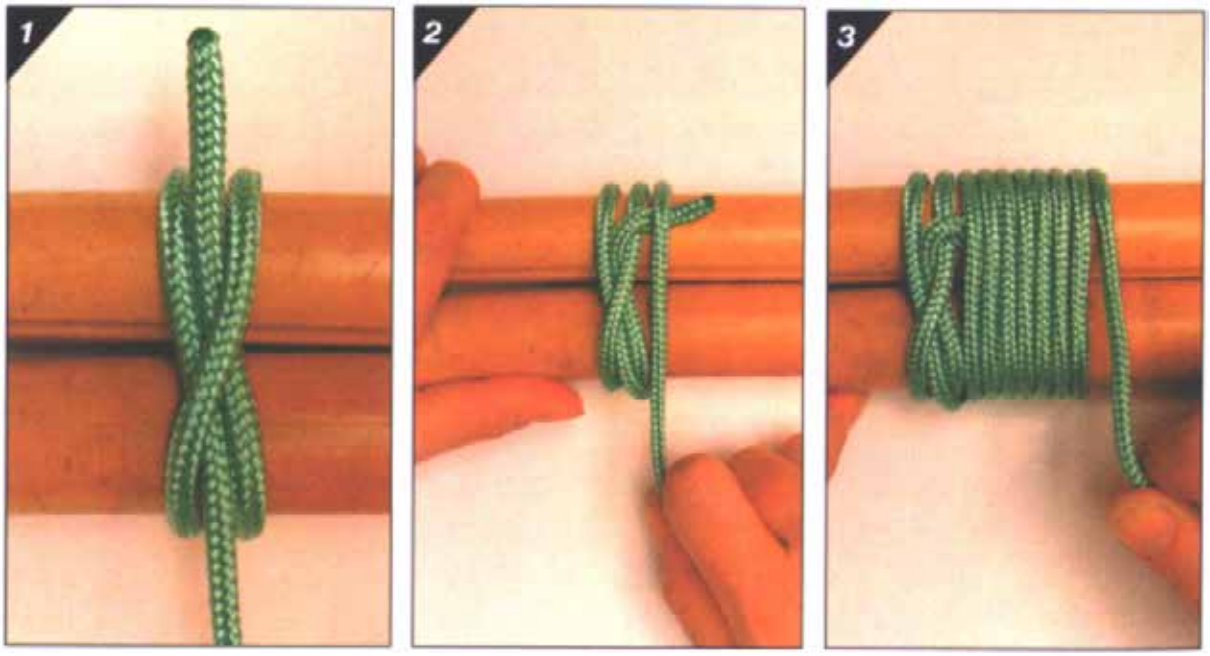
Note. From Pocket Guide to Knots and Splices (p. 163), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure A-4 Steps 1–4

1. A short distance back from the working end, make a crossing turn with the working part on top. Go on to form the size of the loop you require.
2. Bring the working end up through the crossing turn. It will go under first, and then lie on top of the other part of the turn.
3. Bring the working end around behind the standing part and down through the crossing turn. A good way to remember this is: “the rabbit comes out of the hole, around the tree and back down the hole again”.
4. Pull tight by holding the working end and pulling on the standing part to complete the bowline.

LASHING INSTRUCTIONS

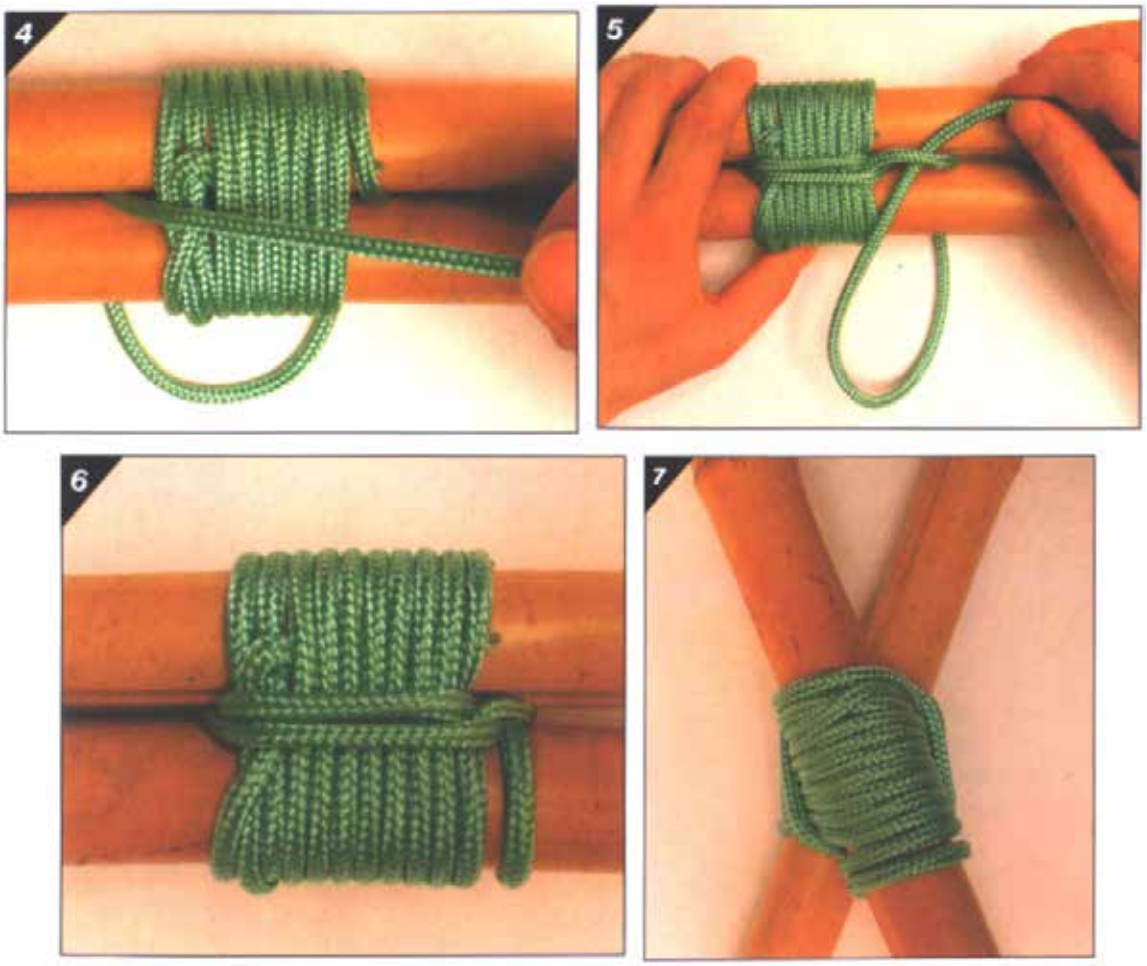
ROUND LASHING



Note. From Pocket Guide to Knots and Splices (p. 184), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure B-1 Steps 1–3

1. Start by making a clove hitch around both poles.
2. Wrap around both poles, trapping the end of the clove hitch.
3. Carry on making eight to ten more turns round the pair of poles.



Note. From Pocket Guide to Knots and Splices (p. 185), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure B-2 Steps 4–7

4. The lashing could now be finished with a clove hitch around both poles or put in a couple of frapping turns by bringing the end of the rope between the two poles.

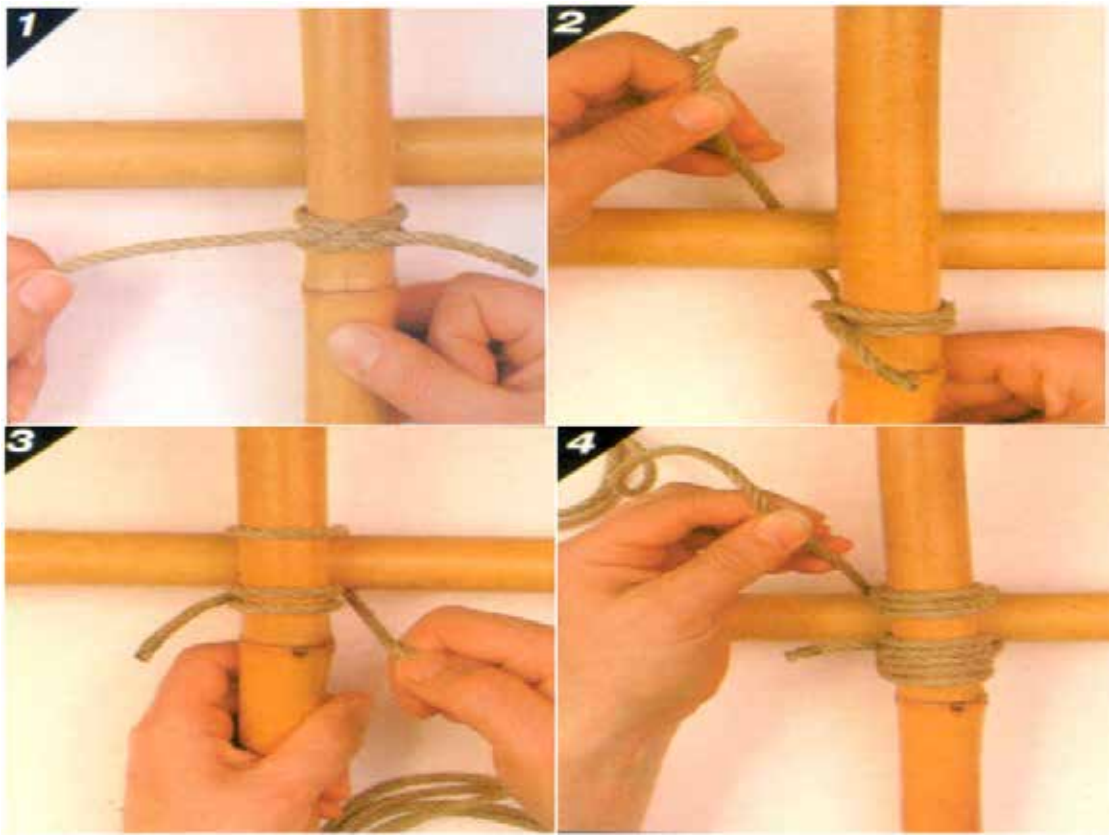
5. Finish off with a clove hitch around one of the poles.

6. Pull tight to finish the round lashing with the poles parallel.

7. If being used for an "A" frame then open the poles.

LASHING INSTRUCTIONS

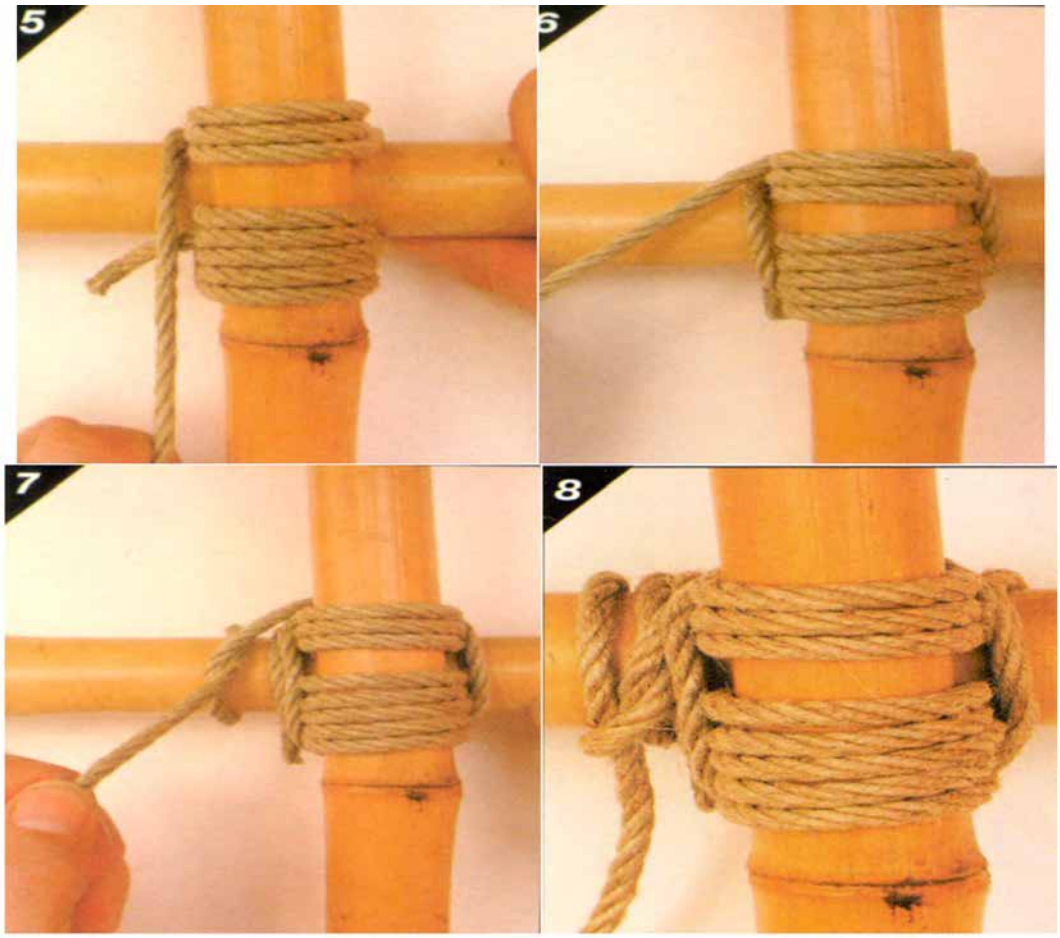
SQUARE LASHING



Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure B-3 Steps 1–4

1. With the vertical pole on top of the horizontal pole, make a clove hitch on the vertical pole just below the horizontal pole.
2. Bring all the cord around behind the horizontal pole.
3. Bring the cord over the vertical pole and back behind the horizontal pole to the clove hitch. Pull tight.
4. Carry on making two or three more complete turns around the two poles, pulling tight after each turn.



Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure B-4 Steps 5-8

5. After passing the clove hitch, bring the cord around the horizontal pole from behind and start to wrap around the junction between the two poles. These are frapping turns—pull them as tight as possible.

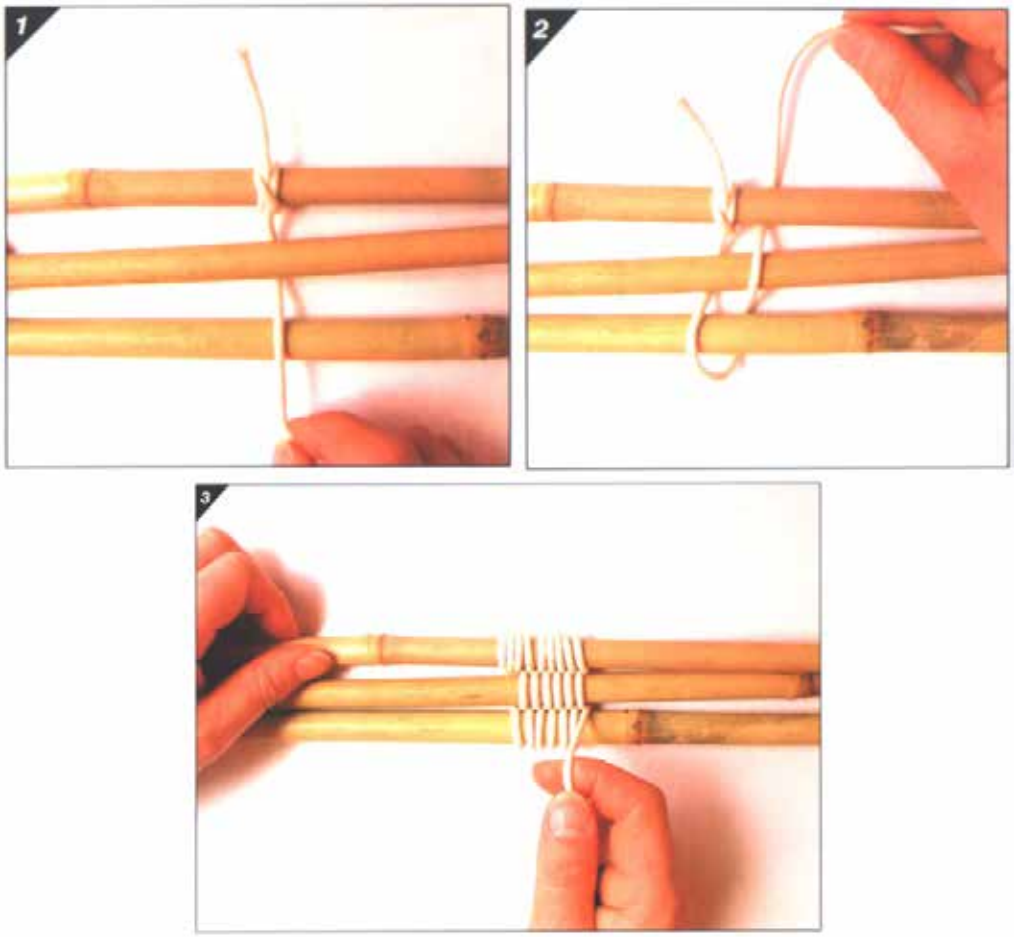
6. Make two frapping turns.

7. Finish off with a clove hitch around the horizontal pole.

8. Pull tight to complete the square lashing.

LASHING INSTRUCTIONS

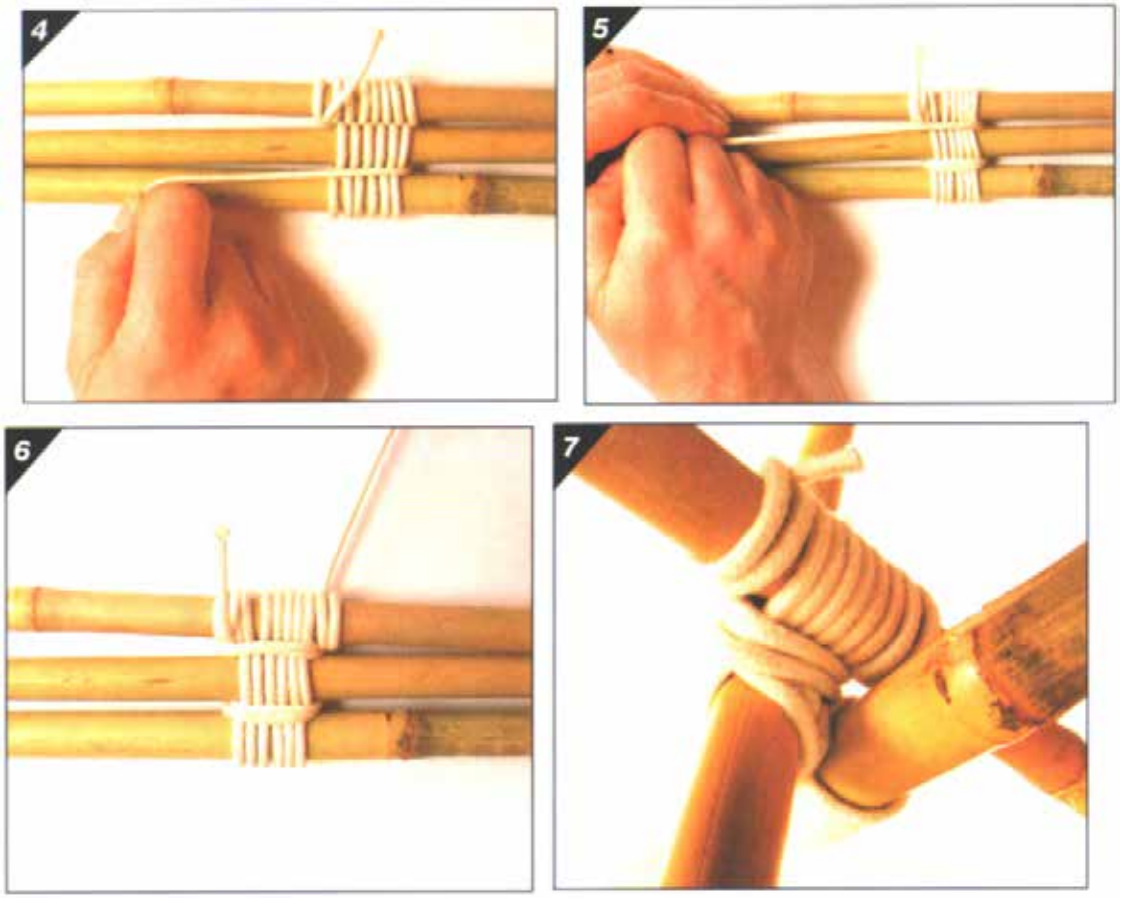
FIGURE-OF-EIGHT LASHING



Note. From Pocket Guide to Knots and Splices (p. 187), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure B-5 Steps 1–3

1. Start with a clove hitch around one of the poles, and lead the rope under and over the other two poles.
2. Go around the pole furthest away from the start and weave the rope back over and under.
3. Continue to weave the rope in the figure-of-eight manner for seven or eight full passes before bringing the rope up between two of the poles.



Note. From Pocket Guide to Knots and Splices (p. 181), by D. Pawson, 2001, London, England: Prospero Books Inc. Copyright 2001 by PRC Publishing Ltd.

Figure B-6 Steps 4-7

4. Pull the rope parallel to the poles and start to put in some frapping turns.
5. After making frapping turns between the first two poles move on to make frapping turns around the other pair of poles.
6. Finish off with a clove hitch around the pole from which you first started.
7. Open to create tripod.

ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 10

EO C190.03 – CONSTRUCT A HOOTCHIE-STYLE SHELTER

Total Time: 90 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Prepare all materials required for the construction of a hootchie-style shelter for each group of cadets.

Prepare an example hootchie-style shelter.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

A demonstration and performance was chosen for TP 1 as it allows the instructor to explain and demonstrate setting up a hootchie-style shelter while providing an opportunity for the cadets to observe and ask questions.

A practical activity was chosen for TP 2 as it is an interactive way for the cadets to experience setting up shelters in a safe and controlled environment.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have constructed a hootchie-style shelter.

IMPORTANCE

In a survival situation, it is very important to be able to construct an effective shelter. A shelter protects a person from weather, animals and insects. They can also provide warmth, shade and comfort. The hootchie-style shelter is effective for squadron aircrew survival exercises.

Teaching Point 1	**Explain and demonstrate the procedure for constructing a hootchie-style shelter.**
Time: 25 min	Method: Demonstration

OBTAIN THE APPROPRIATE SUPPLIES

In order to effectively build a hootchie-style shelter, the following supplies will be needed:

- Two military-style groundsheets that properly zip together (these are also called half shelters or utility sheets).
- Three metres of twine or thin rope.
- Several pegs or small twigs.
- Spade or small shovel.
- Knife or scissors.

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 1 Two Military Groundsheets

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 2 Appropriate Supplies

SELECTING A SITE

1. Apply the site selection principles when constructing the hootchie.
2. Ensure that the two trees are spread approximately ten feet apart (or the length of the groundsheets allowing for approximately two feet for the entrance).

CHECKING MATERIAL

1. Inspect the material for fatigue and wear (should not have holes as it would allow rain and other objects into the completed shelter).
2. Ensure that the zippers on the groundsheets are not damaged.
3. Inspect the grommets on each groundsheet to ensure they are in good repair so that they can be utilized for holding pegs down.

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 3 Grommet

4. The twine used should be strong enough to hold the two groundsheets up and allow enough give for the fatigue that is experienced when cadets enter and leave the shelter.

ZIPPING THE GROUNDSHEETS

1. The two groundsheets are zipped together to form a sufficient bond.

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 4 Zipping Groundsheets

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 5 Two Groundsheets Zipped Together

TYING THE SHELTER TO TREES

1. Using a clove hitch, tie each end of the zipped groundsheet to the two trees with the twine provided, cutting the excess twine for future use.

2. Ensure that the shelter is tied at the waist of the tallest occupant. This height allows enough head room when the shelter is complete.

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 6 Tying Shelter to a Tree

3. The two groundsheets should be pulled tight as possible between the two trees to prevent rain from collecting and stops the shelter from sagging after extended use.

4. When tying the shelter, ensure that the flap at the peak of the shelter covers the zipper and that there is enough room on one end for an entrance and exit.

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 7 Shelter Tied to Two Trees

PEGGING

1. Using an appropriate length string, pull the string through the grommets that run along the bottom of the groundsheets.
2. Tie the string together to form a loop. Using these loops, tightly pull each corner of the groundsheets out from the centre and peg them using small twigs.
3. Leave the edge of the groundsheet about 5 cm above the ground for ventilation.

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 8 Pulling Pegs Tight

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 9 Shelter 5 cm Above the Ground

4. After the corners are pegged, peg the remaining grommets in between the two corners on each side.

When each side of the shelter is pegged, it should be flush, tight surface with no wrinkles. This tight surface allows for efficient run-off of rain.

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 10 Flush, Tight Surface

Ensure that the flaps for the doors are tied together prior to pegging. If the doors are not tied they may not tie together properly when the shelter is tightly pegged.

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 11 Doors Tied Together

DIGGING TRENCHES

1. Dig small trenches 10 cm away from the sides of the shelter to allow for effective drainage of rainwater.
2. Trenches should be approximately 10 cm in width and 5–10 cm deep.
3. When the shelter is complete, dry grass or hay can be used as bedding.

Note. Created by Director of Cadets 3, 2006, Ottawa, ON: Department of National Defence.

Figure 12 Completed Hootchie-style Shelter

Teaching Point 2 **Have the cadets construct a hootchie-style shelter.**

Time: 60 min Method: Practical Activity

ACTIVITY

OBJECTIVE

The objective of this activity is to have the cadets construct a hootchie-style shelter.

RESOURCES

- Two groundsheets,
- Three metres of twine or thin rope,
- Several pegs or small twigs,
- Spade or small shovel,
- Knife or scissors, and
- Flagging tape.

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

- Divide the cadets into groups of two. Each group member should be of the same gender.
- Direct cadets to find a suitable site to build a hootchie-style shelter.
- Issue required resources to each group of cadets.
- Direct each group to construct a hootchie-style shelter.

SAFETY

Nil.

END OF LESSON CONFIRMATION

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

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

In a survival situation, it is very important to be able to construct an effective shelter. A shelter protects a person from weather, animals and insects. They can also provide warmth, shade and comfort. The hootchie-style shelter is effective for squadron aircrew survival exercises.

INSTRUCTOR NOTES / REMARKS

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

REFERENCES

C3-002 ISBN 0-00-653140-7 Wiseman, J. (1999). *The SAS survival handbook*. Hammersmith, London: HarperCollins Publishers.

C3-003 ISBN 1-896713-00-9 Tawrell, P. (1996). *Camping and Wilderness Survival: The ultimate outdoors book*. Green Valley, ON: Author.

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ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 11

EO C190.04 – COLLECT DRINKING WATER IN THE FIELD

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-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Prepare a suitable instructional area.

Prepare examples of water collection devices.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for TP 1 to orient the cadet to conserving water and generate an interest in the subject.

A demonstration and performance was chosen for TP 2 as it allows the instructor to explain and demonstrate collecting drinking water and provides an opportunity for the cadet to practice the skill under supervision.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have collected drinking water in the field.

IMPORTANCE

Cadets will obtain the skills to collect water in a survival situation. Water is vital to human survival. Without sufficient drinking water the body with shut down and eventually die. Having sufficient drinking water combats thirst, which is an enemy of survival.

Teaching Point 1 **Describe the importance of water conservation and retaining fluids.**

Time: 15 min Method: Interactive Lecture

OVERVIEW

The human body consists of 75% water. It is required to keep kidneys functioning so they may eliminate wastes, control body temperature, and regulate the nervous system.

Water is essential to life. All living things contain water and depend on it. The average person can survive for approximately three weeks without food but only three days without water. Do not wait until water supplies have completely diminished to find a water source. When faced with a survival situation, conserve water and find a source as soon as possible. The source should be fresh, running water though. However, boiling or the use of chemical purifiers can sterilize water.

When water is lost from the body it must be replaced to maintain health and efficiency. The human body loses two to three litres of water per day, which must be replaced to maintain the water balance. This water replacement occurs by consuming actual water or water that is contained in food.

DEHYDRATION

The human body has no means of storing water like it can with food fats. When the body is deprived of water it becomes dehydrated, which can affect it in very negative ways.

Effects of Water loss:

Loss of 1–5% Body Water	Loss of 6–10% Body Water	Loss of 11–12% Body Water
Thirst	Headache	Delirium
Discomfort	Dizziness	Swollen tongue
Lethargy	Dry mouth	Twitching
Impatience	Tingling in limbs	Deafness
Lack of appetite	Blue shade to skin	Darkening vision
Flushed skin	Slurred speech	Lack of feeling in the skin
Increased pulse	Difficulty breathing	Skin starts to shrivel
Nausea	Inability to walk	Inability to swallow
Weakness	Blurred vision	Death

RETAINING FLUIDS

The following precautions can be taken to keep fluid loss to a minimum:

- Avoid exertion.
- Do not smoke.
- Keep cool, stay in the shade.
- Do not lay on the hot ground or heated surfaces.
- Eat as little as possible – If there is little fluid in your body, water is taken from the vital organs to digest the food.
- Avoid speech.
- Breathe through the nose, not the mouth.

CONFIRMATION OF TEACHING POINT 1

QUESTION:

Q1. What percentage of the human body is water?

Q2. How much water does the human body lose each day?

Q3. What are three ways to prevent water loss?

ANTICIPATED ANSWERS:

A1. Seventy-five per cent.

A2. Two to three litres.

A3. Avoid exertion, do not smoke, keep cool, stay in the shade, do not lay on the hot ground or heated surfaces, eat as little as possible, avoid speech, and breathe through the nose, not the mouth.

Teaching Point 2 — **Explain, demonstrate and have the cadets collect drinking water.**

Time: 40 min — Method: Demonstration and Performance

For this skill lesson, it is recommended that the instruction take the following format:

1. Explain and demonstrate the complete skill while cadets observe.
2. Explain and demonstrate each step required to complete the skill. Monitor cadets as they imitate each step.
3. Monitor the cadets' performance as they practice the complete skill.

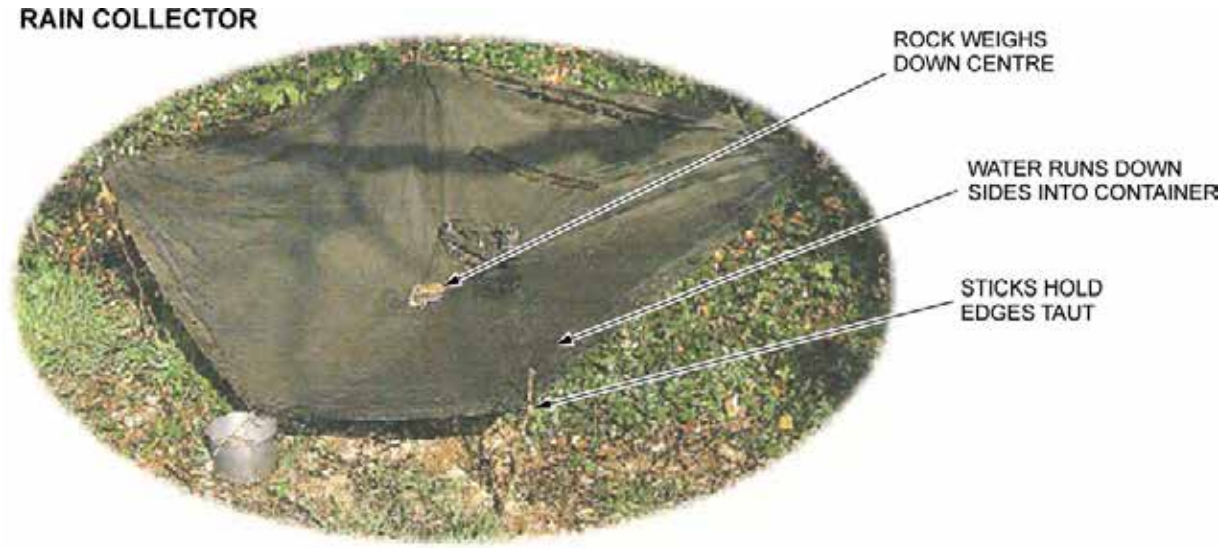
Note: Assistant instructors may be required to monitor the cadets' performance.

COLLECTING WATER

Rain Water

Set out a container to collect any rain that may fall. The flow from the roof of a shelter can be collected using improvised guttering to channel the rain into containers. Rainwater requires less purification than a standing body of water. Collecting rainwater is also easier than other collection methods.

Stretch a plastic bag / poncho tightly over a wide area, preferably on a slope. Peg down its corners with sticks and collect the rain in a container. A rock may be used to weigh down the centre and better direct the water into the container. When waterproof sheets are unavailable, use birch bark sheet and shape it to channel the water into a container.



Note. From The Complete Wilderness Survival Manual by Hugh McManners, 1994, Toronto, ON: McMillan Canada.

Figure 1 Rain Collector

DEW

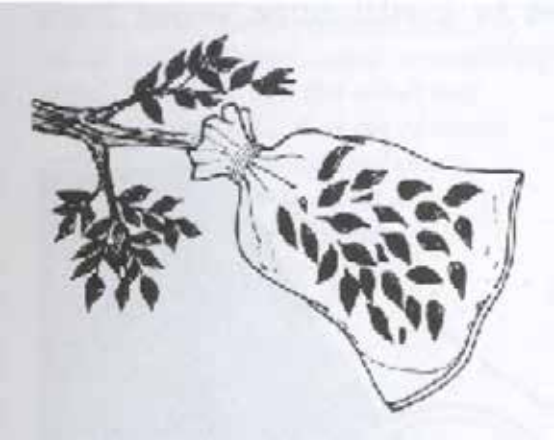
As the air cools down at night, the water vapour in the air condenses as dew on low-lying ground, and vegetation. This water evaporates rapidly as the sun rises. Many plants, insects and animals depend upon dew to survive. Humans can also make use of this natural water supply. Dew can be collected by soaking a cloth in long wet grass. The best time for collection is at dawn. When the cloth is soaked, wring the water out into a container. If a cloth is unavailable, a spare t-shirt or other piece of clothing may be used.

Note. From The Complete Wilderness Survival Manual by Hugh McManners, 1994, Toronto, ON: McMillan Canada.

Figure 2 Dew Collection

Water from Vegetation

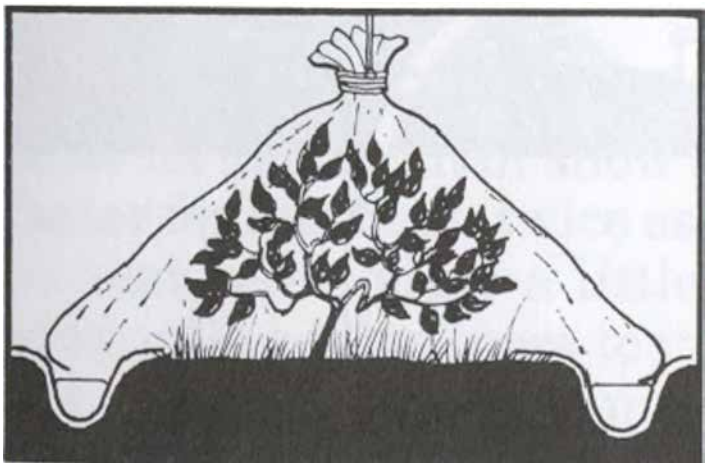
Tie a plastic bag over a healthy, bushy green branch. The water vapour given off by the foliage heats up inside the plastic and condenses to form water inside of the bag. On trees, keep the mouth of the bag at the top with a corner hanging low to collect condensed evaporation.



Note. From The SAS Survival Handbook, by John Wiseman, 1999, London, England: HarperCollins Publishers.

Figure 3 Collecting Condensation

An entire plant can also be used as a water source. Placing a plastic bag over any vegetation collects moisture by evaporation. The moisture condenses on the plastic as it cools. Suspend the bag to an overhead tree branch, or place a wide stick on the inside to prop up the plastic bag. Arrange points for the water to collect.



Note. From The SAS Survival Handbook, by John Wiseman, 1999, London, England: HarperCollins Publishers.

Figure 4 Collecting condensation from plants

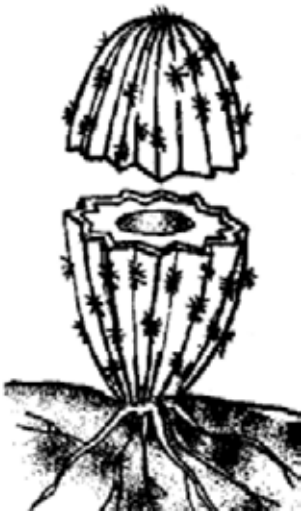
There are many different types of vegetation that store water in either their leaves or roots. Some types of vegetation capture rainwater to trap insects for food. Others secrete special fluids that can be tapped and drank by humans in emergencies. Some examples include: pitcher plants, cacti, tree roots and vines.

PITCHER PLANT

(NEPENTHES SPP.)
THIS PLANT CATCHES INSECTS IN A WATERY FLUID IN ITS "PITCHER". YOU CAN EXTRACT THE WATER, BUT IT MUST THEN BE STRAINED TO REMOVE ANY INSECTS (WHICH YOU CAN EAT).

Note. From The Complete Wilderness Survival Manual by Hugh McManners, 1994, Toronto, ON: McMillan Canada.

Figure 5 Pitcher Plant



Note. From Camping and Wilderness Survival: The Ultimate Outdoors book by Paul Tawrell, 1996, Green Valley, ON: Author

Figure 6 Cactus

Solar Still

Water can be extracted from soil using a solar still. As long as there is a difference in temperature in between two surfaces, air between those surfaces heats up and becomes saturated. The air condenses as droplets on the cooler surface.

To construct a solar still dig a hole about three feet wide and two feet deep. Place a collecting can at the bottom of the hole. Spread a plastic sheet across the hole and hold it in place with rocks. Weigh down the centre of the sheet over the container with a fist-sized rock. As the temperature of the air and soil rise, water

vapour condenses on the underside of the cooler sheet and runs into the container. Dig another hole when the moisture in the hole / still has been used up.

Note. From The Complete Wilderness Survival Manual by Hugh McManners, 1994, Toronto, ON: McMillan Canada.

Figure 7 Solar Still

Digging for Ground Water

Water often seeps into a hole dug in a location where the water table is high. Dig a hole about one foot deep. Water seeps from the ground into the hole. The water is dirty the first few times the hole fills, but clear water eventually rises and can be purified and drunk. Keep scooping away the muddy water until clear water rises. Note the surroundings before a water hole has been dug. Never dig where the mud has a potent smell or a green slime on the surface. This water is probably contaminated. Do not collect water where there are dead animals and always purify the water before drinking.

ACTIVITY

Time: 20 min

OBJECTIVE

The objective of this activity is to have the cadets make a water collection device.

RESOURCES

- Plastic bags / sheets of plastic (one per group).
- Shovels (one per group).
- Pegs (one per group), and
- Cup or bowl (one per group).

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

- Divide the cadets into groups of three or four.
- Assign each group a water collection device to set up.
- Cadets are to construct the water collection device as per instructions given during the lesson.

SAFETY

Nil.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. What are some surface characteristics to look for when searching for a water source?

Q2. How can insects help find a water source?

Q3. What is a method of collecting water?

ANTICIPATED ANSWERS:

A1. Follow dry riverbeds. The structure and composition of the rocks may result in a stream emerging. The riverbed may be followed to its source. There may be a trickle of water that remains or humid soil is present where a pit can be dug to the water table. Watch for damp spots on the ground. A high water table can cause this. Old human habitations can be a good place to find water. Old mines and dumps are good examples. Water may be collected from dew accumulation.

A2. Insects live within flying distance of water. Their flight path may be followed to a water source.

A3. Rain collection, dew collection, water from vegetation, solar still, and water from the ground.

END OF LESSON CONFIRMATION

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

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

Cadets have learned the effects of water on the human body, how to find water and how to collect it. Water is vital to human survival; without sufficient drinking water the body shuts down and eventually dies. Having sufficient drinking water combats thirst, which can be an enemy of survival.

INSTRUCTOR NOTES / REMARKS

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

This lesson should be scheduled at the start of the morning with the cadets setting up their water-collection devices. Follow up should take place the next to indicate the cadets' water-collecting devices worked.

REFERENCES

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C3-003 ISBN 1-896713-00-9 Tawrell, P. (1996). *Camping and wilderness survival: The ultimate outdoors book*. Green Valley, ON: Author.

C3-021 ISBN 0-7715-9035-0 McManners, H. (1994). *The complete wilderness survival manual*. Toronto, ON: McMillan Canada.

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ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 12

EO C190.05 – IDENTIFY ENVIRONMENTAL INJURIES

Total Time:	30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for this lesson to orient the cadets to environmental injuries and generate awareness of the subject.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have identified environmental injuries.

IMPORTANCE

Being able to recognize environmental injuries gives cadets the confidence to help in an emergency that could occur any time while in a survival situation. Knowing the symptoms and basic treatments for environmental injuries will aid cadets in possibly preventing and detecting an injury earlier.

Teaching Point 1 **Explain how to recognize hiking injuries.**

Time: 5 min Method: Interactive Lecture

BLISTERS

Blisters are sign that boots do not fit properly or are not broken in. Blisters are also a sign that the feet are too tender for the distance being covered in the hike. The first sign of a blister is hot spots. Upon noticing a blister, relieve the pressure on the area by loosening the boots, removing a pair of socks, or even cutting a hole in the socks around the offending area.

SHIN SPLINTS

Shin splints are characterized as pain in the front of the lower leg. Shin splints primarily come from excess toe flexion (bending). Shin splints are usually caused by walking without extending the ankle on each step and not using the toes to press down on the ground. Do not wear clogs of any kind because the ankle needs to stay flexed to keep the clog on the foot.

MUSCLE CRAMPS

Muscle cramps are often associated with dehydration. Muscle cramps commonly occur in people who overwork their muscles to the point of exhaustion. Some possible causes of muscle cramps include:

- lack of water,
- lack of calcium,
- lack of potassium, and
- lack of sodium.

SPRAINS

A sprain occurs when the ligaments of a joint are torn by a sudden twist or wrench. Symptoms of a sprain can include the joint being very painful when moved, and considerable swelling. First aid for a sprain includes wrapping the joint in a heavy bandage and resting the limb in a comfortable elevated position.

Inform the cadets that if they experience any of the mentioned symptoms they should tell someone immediately and go to the nearest first aid station.

CONFIRMATION OF TEACHING POINT 1

QUESTION:

Q1. What are blisters a sign of?

Q2. What is the primary cause of shin splints?

Q3. What are the common causes of muscle cramps?

ANTICIPATED ANSWERS:

A1. Blisters are a way of telling the body the boots do not fit, they are not broken in or the feet are too tender for the miles covered hiking.

A2. Shin splints primarily come from excess toe flexion.

A3. Lack of water, lack of calcium, lack of potassium, and lack of sodium.

Teaching Point 2 **Explain how to recognize frostbite injuries.**

Time: 5 min Method: Interactive Lecture

FROSTBITE

There are several types of frostbite. Each of the types is increasingly worse than the previous. The types of frostbite include:

- **Incipient frostbite or frostnip**. This type of frostbite is the initial pain from the cold. It is followed by numbness and after rewarming, a tingling feeling. No permanent damage occurs with this type of frostbite.
- **Superficial frostbite**. This type of frostbite affects only the skin and tissue that is near the surface. The affected area is white and frozen to the touch, but the tissue beneath it is soft and resilient. In worse cases, blisters form after 24 to 36 hours and the pain of the injury may last several weeks.
- **Deep frostbite**. This frostbite is more serious and involves deeper tissue, possibly as deep as the bone. Before rewarming, the injured area is hard. Blisters usually form in three to seven days and are larger than in superficial frostbite. There will be a significant amount of swelling, which can last several weeks.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

1. What is incipient frostbite or frostnip?
2. What is superficial frostbite?
3. What is deep frostbite?

ANTICIPATED ANSWERS:

1. It is the initial pain from the cold.
2. It only affects the skin and tissue that is near the surface.
3. It is more serious and involves deeper tissue, possibly as deep as the bone.

Teaching Point 3 **Explain how to recognize the signs and symptoms of hypothermia.**

Time: 5 min Method: Interactive Lecture

HYPOTHERMIA

Hypothermia means too little heat. In medical terms it means a lowering of the body's core temperature, resulting in the breakdown of bodily functions.

Some factors that contribute to hypothermia include:

- lack of proper nutrition or hydration,
- inadequate clothing,
- getting wet, and
- exhaustion.

Some ways to prevent hypothermia include:

- wearing a sufficient thickness of insulation,
- having protection from the wind,
- keeping dry (inside and out),
- maintaining proper nutrition and hydration, and
- pacing to prevent fatigue.

Signs to watch for in others include:

- complaints of feeling cold,
- stumbling,
- falling,
- slurred speech,
- violent shivering,
- poor judgement,
- irrational behaviour, and
- in extreme cases loss of urinary control and fruity acetone breath.

Signs for individuals to watch for in themselves include:

- feeling of deep cold,
- shivering,
- stumbling,
- falling, and
- poor coordination.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS:

Q1. What are some factors that contribute to hypothermia?

Q2. What are the signs of hypothermia to watch for in others?

Q3. What are the signs of hypothermia to watch for in yourself?

ANTICIPATED ANSWERS:

A1. Lack of proper nutrition or hydration, inadequate clothing, getting wet and exhaustion.

A2. Complaints of feeling cold, stumbling, falling, slurred speech, violent shivering, bad judgement, irrational behaviour, people with profound hypothermia may lose urinary control and have fruity acetone breath.

A3. Feeling of deep cold, shivering, stumbling, falling and poor coordination.

Teaching Point 4 **Explain how to recognize heat related injuries.**

Time: 10 min Method: Interactive Lecture

HEAT CRAMPS

Heat cramps are usually the first warning of heat exhaustion. They occur in the muscles that are doing the most work such as the arms, legs and abdomen. Heat cramps are usually due to a lack of body salt.

Symptoms of heat cramps include:

- shallow breathing,
- vomiting, and
- dizziness.

Treatment for heat cramps includes:

- moving to shade,
- resting, and
- drinking water with a small amount of salt dissolved in it.

HEAT EXHAUSTION

Heat exhaustion is produced by exposure to high temperature and humidity. It is also produced through the loss of body fluids through excessive sweating. It can occur without direct exposure to the sun.

Symptoms of heat exhaustion include:

- pale face,
- cold and sweating skin,
- weak pulse accompanied by dizziness,
- weakness,
- cramps, and
- deliriousness or unconsciousness.

Treatment for heat exhaustion includes:

- moving to shade,
- resting, and
- drinking water with a small amount of salt dissolved in it.

HEATSTROKE

Heatstroke is the most serious result of overexertion or overexposure to the sun.

Symptoms of heatstroke include:

- hot dry skin,
- flushed face and feverish,
- sweating stops,
- rising temperature,
- fast, strong pulse,
- severe headache,
- vomiting, and
- unconsciousness.

Treatments for heatstroke include:

- laying in the shade with head and shoulders slightly raised;
- removing layers of outer clothing;
- cooling body by wetting clothing with tepid (warm) water and fanning; and
- sprinkling water over the individual (do not fully immerse the individual in water).

SUNBURN

A sunburn with blistering is dangerous, especially with pale and sensitive skin.

Treatment for sunburn includes:

- avoiding further exposure to the sun by keeping in the shade or covering skin with clothes;
- taking painkillers if available; and
- covering all blisters with dressings (do not burst the blisters).

SORE EYES

Sore eyes may occur due to glare or excessive exposure to the sun or dust particles.

Treatment for sore eyes includes:

- resting in the shade;
- covering eyes after washing out the foreign debris;
- bathing eyes in warm water;
- using a mask to cover the eyes; and
- darkening below eyes with charcoal to avoid recurrence.

DEHYDRATION

Dehydration becomes more noticeable as more body fluid is lost. Water makes up 75% of the body's weight. Survival is unlikely if more than one fifth of the body's water is lost.

For fluid loss between 1-5% of body weight, symptoms include:

- thirst,
- vague discomfort,
- lack of appetite,
- flushed skin,
- impatience,
- sleepiness, and
- nausea.

For fluid loss between 6-10% of body weight, symptoms include:

- dizziness,
- headache,
- laboured breathing,
- no salivation,
- indistinct speech, and
- unable to walk.

For fluid loss between 11-20% of body weight, symptoms include:

- delirium,
- swollen tongue,
- inability to swallow,
- dim vision,
- numb, and
- shrivelled skin.

In the latter stages of dehydration, there is significant muscular weakness and impaired mental capacity.

Inform the cadets that if they experience any of the symptoms listed in this class to tell someone immediately and go to the nearest first aid station.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS:

Q1. What are the symptoms of heat stroke?

Q2. Survival is unlikely if how much of the body's water is lost?

Q3. What is the treatment for heat exhaustion?

ANTICIPATED ANSWERS:

A1. Hot dry skin, flushed face and feverish – but sweating stops, temperature rises, pulse becomes fast and strong, severe headache, often with vomiting and unconsciousness may follow.

A2. One-fifth.

A3. Moving to shade, resting and drinking water with a little salt dissolved in it.

END OF LESSON CONFIRMATION

QUESTIONS:

Q1. What are blisters a sign of?

Q2. What are the three types of frostbite?

Q3. What are the signs of hypothermia to watch for in yourself?

ANTICIPATED ANSWERS:

A1. Blisters are a way of telling the body that one's boots do not fit, they are not broken in or one's feet are too tender for the miles they are covering in their hike.

A2. Incipient or frostnip, superficial frostbite and deep frostbite.

A3. Feeling of deep cold, shivering, stumbling, falling and poor coordination.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

Environmental injuries can be very serious and life threatening. Understanding the symptoms and basic treatments for these injuries provides individuals with the knowledge to possibly prevent and detect an injury earlier.

INSTRUCTOR NOTES / REMARKS

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

REFERENCES

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C3-013 ISBN 0-7360-4602-X Clark, N. (2003). *Nancy Clark's sports nutrition guidebook*. United States: Author.

C3-014 ISBN 0-3955-2808-9 Alter, J. (1986). *Stretch & strengthen*. United States: Judith Alter.

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ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 13

EO C190.06 – DEMONSTRATE RESPECT FOR THE ENVIRONMENT ON AN AIRCREW SURVIVAL EXERCISE

Total Time:	30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Ensure the following materials are ready prior to the class:

- an example of biodegradable soap or shampoo; and
- a stove fuel cartridge.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for this lesson to present information on respecting the environment during an aircrew survival exercise.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have demonstrated respect for the environment on an aircrew survival exercise.

IMPORTANCE

Cadet squadrons are at aircrew survival training sites only a few days each year while these areas are always home to wildlife and vegetation. By following certain procedures, the wilderness can be preserved while serving aircrew survival exercises.

Teaching Point 1 **Discuss the importance of low impact camping.**

Time: 5 min Method: Interactive Lecture

Try to select a location where both good and poor examples of low impact camping are present.

LOW IMPACT CAMPING CONCERNS

The goal of low impact camping is to leave the training area in the condition it was before being used. There should be little indication that the area had been used at all.

POSSIBLE OUTCOMES OF ENVIRONMENTAL OVERUSE

With camping and hiking becoming increasingly popular, it is important to treat the environment with respect. The overuse of environmental resources could cause:

- an excess build up of garbage,
- barren, stripped land,
- exposed tree roots,
- destroyed plants, or absence of vegetation, and
- scarred trees where branches have been torn away.

These outcomes affect the environment negatively. For example, the amount of garbage in a wilderness area can pollute the ground, the water, and the wildlife that live there.

ENVIRONMENTAL PRECAUTIONS

Through people taking responsible actions and following proper precautions, a site can be left in its natural condition for continuous use. This environmental consciousness helps wildlife and plants to recover from the impact of field training. A number of precautions may be taken, to include:

- packing out all garbage, including used stove cartridges and other non-burnable trash;
- staying on trails whenever possible. Do not create new paths by cutting down vegetation;
- avoiding crushing plants underfoot by walking on rocks and compacted earth;
- no harassing or feeding animals;
- where campfires are allowed, gathering fallen branches instead of cutting down trees for firewood; and
- using designated fire pits for campfires.

CONFIRMATION OF TEACHING POINT 1

QUESTION:

Q1. When creating a fire, where should the firewood be collected?

Q2. Why should you stay on trails whenever possible?

Q3. If you come across various forms of wildlife, what precautions should be taken?

ANTICIPATED ANSWERS:

A1. Gather fallen branches instead of cutting down trees for firewood.

A2. So vegetation is left alone and not trampled.

A3. Do not harass the animals or feed them.

Teaching Point 2 **Discuss factors while cooking.**

Time: 5 min Method: Interactive Lecture

IMPORTANT FACTORS WHILE COOKING IN THE FIELD

There are a number of factors that should be considered while cooking in the field, to include:

- drain food away on the ground in the cooking area;
- evenly distribute waste water from cooking across the ground away from the cooking area and bivouac site;
- dump waste water away from ground water;
- pack up garbage immediately; and
- pack wet waste in a sealed container or a plastic bag and separate from dry garbage.

RECYCLING IN THE FIELD

It is very important to divide up garbage for recycling. There are different recycling groups for cardboard, paper, metal, glass, plastic and rigid foam.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. What factors should be taken into account when disposing of waste water from cooking?

Q2. What is important to keep in mind when disposing of wet waste?

Q3. What are the different types of recyclable materials?

ANTICIPATED ANSWERS:

A1. It should be evenly distributed across the ground away from the cooking area and bivouac site.

A2. Wet waste should be sealed in a container or plastic bag.

A3. Cardboard, paper, metal, plastic, rigid foam, and glass.

Teaching Point 3 **Discuss factors while washing.**

Time: 10 min Method: Interactive Lecture

IMPORTANT ENVIRONMENTAL FACTORS WHILE WASHING

It is important to maintain proper hygiene while in the field. If soap is going to be used while bathing in the field, certain precautions should be taken, to include:

- selecting a site on high and dry ground that is at least 100m away from a ground water source;
- using as little soap as possible, sponge bathe from a basin of water;
- ensuring that the grey water is disposed of properly into a grey water container; and
- using biodegradable soaps and shampoos should be used.

Prior to swimming in a large body of water, ensure that any oils (eg, sunscreen, grease, fuel residue, bug repellent, body oils.) are removed to ensure that no water is contaminated.

Show an example of biodegradable soap and shampoos to the cadets.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS:

Q1. If using soap, where should one bathe?

Q2. If using soap to bathe, what form of soap should be used?

Q3. What should be washed off before going swimming?

ANTICIPATED ANSWERS:

A1. Ensure the site is on high and dry ground, and at least 100m away from a ground water source.

A2. Biodegradable soap.

A3. Different types of oils (eg, sunscreen, grease, fuel residue and body oils).

Teaching Point 4 **Discuss waste disposal methods.**

Time: 5 min Method: Interactive Lecture

PROPER DISPOSAL OF HUMAN WASTE

There are a number of factors that should be considered with respect to waste disposal in the field. Wherever possible, use an established toilet, outhouse or portable toilet. If toilets, outhouses, or portable toilets cannot be used, then a latrine should be dug for communal use. A hole about 60 cm x 60 cm, 30 to 60 cm deep works for about 20 people for up to two days. When the hole is full to about 15 cm from the top, cover it with the remaining dirt and natural cover.

Ensure to check local regulations concerning latrine construction prior to demonstrating this to the class. Some areas do not allow latrine construction.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS:

Q1. If a latrine is constructed (regular measurements), how long will it be suitable?

Q2. Name three types of facilities that should be used for proper waste disposal?

ANTICIPATED ANSWERS:

A1. Up to two days.

A2. An established toilet, outhouse or portable toilet.

END OF LESSON CONFIRMATION

QUESTIONS:

Q1. When creating a fire, where should you collect the firewood?

Q2. What is important to keep in mind when disposing of wet waste?

Q3. What form of soap should be used?

ANTICIPATED ANSWERS:

A1. Gather branches instead of cutting down trees for firewood.

A2. Pack wet waste in a sealed container or a plastic bag and separate from dry garbage.

A3. Biodegradable soap.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

There are a number of things to remember to respect the environment during an aircrew survival exercise. Following proper methods for cooking, washing, and waste disposal are important to preserving the environment. If these methods are followed during exercises, the training area can be maintained and used for many years.

INSTRUCTOR NOTES / REMARKS

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

REFERENCES

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ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL ONE

INSTRUCTIONAL GUIDE

SECTION 14

EO C190.07 – IDENTIFY HABITATS OF ANIMALS AND INSECTS

Total Time:	30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-801/PG-001, *Proficiency Level One Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Recce the area to locate habitats of animals and insects. It is recommended the route be flagged with flagging tape or visibly marked for the cadets before the lesson.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An in-class activity was chosen for this lesson as it is an interactive way to present the content.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have identified habitats of animals and insects.

IMPORTANCE

It is important for cadets to be able to identify animals and insects for food in a survival situation. After a few days the body needs nourishment which may be provided by the animals and insects in the surrounding area.

Teaching Point 1 **Conduct an activity to have the cadets identify habitats.**

Time: 25 min Method: In-Class Activity

EDIBLE INSECTS

Insect Gatherings

Many insects are inactive during the heat of the day, although most emerge to collect moisture when it rains. Look for them in nooks and crannies of trees and behind the bark, in the tissue and seed pods of plants, in any moist shady spots and on the beds of pools of water and streams. The larvae and grubs of many insects are edible and easily found in rotten logs, underground, or under the bark of dead trees. Ants' and termites' nests are often immediately recognizable mounds. Snails can be found in fresh water, salt water and from deserts to alpine meadows. Slugs are simply snails without shells.

Insects provide ample amounts of protein, fats, carbohydrates, calcium and iron. Insects can be found throughout the world and they are easy to procure. Worms contain the highest class of protein with a large proportion of essential amino acids and are easily collected. Although a fair number of insects can be eaten raw, it is best to cook them to avoid ingesting unwanted parasites. Collect only living specimens. Avoid any that look sick or dead, have a bad smell or produce skin irritation or a rash when handled.

As a general rule, avoid insects that carry disease (eg, flies, mosquitoes, and ticks), poisonous insects (eg, centipedes and spiders), and insects that have fine hair, bright colours, and eight or more legs.

NUTRITION BREAKDOWN

Insect (per 100 g)	Protein (g)	Fats (g)	Carbohydrates (g)	Calcium (mg)	Iron (mg)
Crickets	**12.9**	**5.5**	**5.1**	**75.8**	**9.5**
Small grasshoppers	**20.6**	**6.1**	**3.9**	**35.2**	**5.0**
Giant water beetles	**19.8**	**8.3**	**2.1**	**43.5**	**13.6**
Red ants	**13.9**	**3.5**	**2.9**	**47.8**	**5.7**
Silkworm pupae	**9.6**	**5.6**	**2.3**	**41.7**	**1.8**
Termites	**14.2**	**n / a**	**n / a**	**0.050**	**35.5**
Weevils	**6.7**	**n / a**	**n / a**	**0.186**	**13.1**

Note. From Wilderness Survival. (p. 161), by G. Davenport, 2006, Mechanicsburg, PA: Stackpole Books. Copyright 2006 by

Figure 1 Nutritional Value

Insects that can be eaten are bees and wasps, hornets, beetle grubs, locusts, aquatic insects, snails, slugs and worms.

ANIMALS

Many animals make their homes in burrows, usually on high ground away from water. Some, such as rabbits and ground squirrels, use little effort to conceal them, although one or two exits are hidden for use in an emergency. Rabbits' emergency holes are easily dug out; a piece of bramble or barbed wire can be pushed down the hole to hook the rabbit out.

Signs of feeding include:

- the way in which bark has been stripped from trees;
- the gnawed shells of nuts;
- partially eaten fruits;
- bitten off shoots;
- the remains of prey; and
- animals of carnivores or the destruction of nests.

Discarded fruits or nuts are often found when food is plentiful—an animal finds one piece not to its liking and drops it to try another. They not only reveal an animal's presence but suggest bait for traps.

A skilled eye can often identify the species of animal by the pattern left by tooth or beak marks on a nut, or the way in which a pine cone has been stripped to get at its seeds.

DROPPINGS

Droppings give one of the best indications of whether an animal is an herbivore or a carnivore. The size of the animal can be judged from their mass and quantity; dryness is an indication of how long since the droppings were passed. Old droppings are hard and odourless. Fresh are wet and still smelling. Flies draw attention to droppings.

Many mammal droppings have a strong scent. Animals that live on vegetation, such as cattle, deer and rabbits, produce roundish and strawy droppings. The droppings from a meat eater, like cats, are long and tapered. Break open a dropping to see if there are any clues to what the animals have been eating, then bait accordingly.

ROOTINGS

Some animals root up the ground in search of insects and tubers. If the earth is still crumbly and fresh, an animal is likely to have been active on the spot recently. Small scratches may be where a squirrel or other rodents have been digging for shoots.

Scents and Smells

Listen to the noises and register the smells. They are certain to include indications of the wildlife present and where one kind of animals exists there may be others.

TRACKS

Animal tracks consist of bent blades of grass, gnawed bone, broken seeds, the dragged body or tail, and the footprint of the animal.

All prints of an animal are not the same as they depend upon:

- the age of the animal,
- the movement of the animal—walking, running, bounding,
- the material it is walking on—sand, mud, clay, grass, or snow,

- the season—some animals have extra fur on their paws in the winter, and
- the age of the tracks.

When a track is observed:

- Choose a well defined area of the track.
- Study the track to determine the direction of travel, the forefoot and hind foot pattern.
- Determine if there are any body rub points as a dragged tail, dragged foot, or dragged fur of the animal.
- Determine if the animal is running, hopping, walking, trotting, or just meandering.

ACTIVITY

Time: 15 min

OBJECTIVE

The objective of this activity is to have the cadets identify habitats of animals and insects.

RESOURCES

Nil.

ACTIVITY LAYOUT

Nil.

ACTIVITY INSTRUCTIONS

1. Guide the cadets around various points on the trail / route, pointing out any signs of animal habitats.
2. Divide the cadets into groups of three and have them look for habitats of animals.
3. After 10 minutes, have the cadets return back to the instruction area.
4. Have the cadets discuss what animal(s) may live in the habitats they have found.

SAFETY

Nil.

END OF LESSON CONFIRMATION

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

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

Being able to identify animals and insects becomes a very important skill in a survival situation. After a few days, the body needs nourishment which can be animals and insects found in the surrounding areas.

INSTRUCTOR NOTES / REMARKS

The directives outlined in CATO 11-08 *Environmental Protection and Stewardship* are to be adhered to during this training.

REFERENCES

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