

CHAPTER 12

PO 321 – PERFORM THE DUTIES OF A TEAM LEADER ON A WEEKEND BIVOUAC EXERCISE



ROYAL CANADIAN ARMY CADETS
SILVER STAR
INSTRUCTIONAL GUIDE



SECTION 1

EO M321.01 – PERFORM THE DUTIES OF A TEAM LEADER IN THE FIELD

Total Time:	30 min
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PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-703/PG-001, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for this lesson to introduce the cadets to the duties of a team leader in the field.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall be expected to perform the duties of a team leader in the field during a weekend bivouac field training exercise (FTX).

IMPORTANCE

It is important for cadets to learn that being a team leader requires them to provide specific guidance to junior cadets and pass on the knowledge and skills experienced over their participation in the Cadet Program. Recognizing what a junior cadet finds challenging, defines the true meaning of a team leader who supervises their subordinates and identifies problems, offering guidance for a solution.

Teaching Point 1**Discuss the Duties of a Team Leader During a Weekend Bivouac FTX**

Time: 10 min

Method: Interactive Lecture



As team leaders, Silver Star cadets are now expected to perform leadership roles, supervise, guide and provide assistance to junior cadets.

During this instruction, impress upon the cadets that their role as team leaders is not only to command but to assist, supervise, provide guidance and work together to aid training.

DUTIES OF A TEAM LEADER**Supervising**

As team leaders, Silver Star cadets will be working with peers during field training activities. Their role will be to work as a team to supervise junior cadets during daily routine activities. To successfully supervise, they will have to share responsibility and aim toward accomplishing particular goals and outcomes.

At the beginning of an FTX, a group will typically require a lot of additional direction from the team leader as well as constant guidance and assistance. Team leaders will have to impart their knowledge and experiences to their subordinates to guide them through their challenges. As training progresses, the amount of supervision they provide can be scaled back. Through the guidance of the team leader, junior cadets will begin to understand what is required of them during an FTX. Daily routine becomes instinctive reducing the requirement for constant guidance and assistance.



Scenario: A new group of Green Star cadets are participating in their first FTX. They arrive at the bivouac site and are issued tents. Some senior cadets take their tents and locate the ideal tent site; perfect shelter, excellent view and situated with easy access to the rest of the site.

Upon returning to the group and their peers, they notice the cadets are still experiencing difficulty erecting their tents. There are few staff to help the cadets experiencing trouble, and the tents are finally erected well past the scheduled timing.

By looking after themselves first and neglecting their duties, the senior cadets failed to help their subordinates when the requirement to brief and help the junior cadets on the proper set-up of their tents was obvious. While the cadets work on their tents, senior cadets should be monitoring and assisting subordinates to speed up the task and finish on time with properly erected tents.

Note: By providing guidance to the subordinates before and during the set-up of the tents, subordinates are able to learn routine procedures on erecting their tents effectively the first time, therefore requiring less guidance and supervision the next time. It is important to meet the needs of junior cadets to prepare them for future challenges.

Team leaders should discuss and plan what actions they will take to encourage learning among cadets during an FTX. Junior cadets will face many challenges during daily routine activities and an agreed upon and unified approach to tasks will make these challenges easier. The following daily routine activities have to be supervised:

- meals,

- lights out and reveille,
- free time,
- personal hygiene routine,
- equipment use, and
- equipment maintenance.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

- Q1. Who supervises junior cadets?
- Q2. Is supervision an individual task?
- Q3. What activities of daily routine have to be supervised?

ANTICIPATED ANSWERS

- A1. The entire group of team leaders.
- A2. No. Supervision of cadets should be planned and completed as a team.
- A3. The activities of daily routine that have to be supervised are meals, lights out and reveille, free time, personal hygiene routine, equipment use, and equipment maintenance.

Teaching Point 2

Discuss Supervising the Preparation of Meals

Time: 10 min

Method: Interactive Lecture



Team leaders will be responsible to oversee the preparation of meals. It is common for junior cadets to experience confusion and disorganization among the group. Assigning tasks and organizing a routine will help reduce confusion during meal preparation. Discuss types of tasks team leaders can assign when organizing the preparation of meals. Have the team leaders identify:

- what concerns they may have if they were supervising junior cadets preparing a meal;
- some of the difficulties junior cadets may face when they prepare a meal; and
- how they would, as a team establish a routine for the junior cadets during meal preparation.

The goal is to have the team leaders realize how they can help as a team and make preparation of meals safe and routine.

During meal preparation team leaders will be required to provide close supervision, and make and monitor a routine with specific tasks to coordinate the preparation of meals. The various aspects of meal preparation and the role of the team leader includes:

Lighting Stoves. Red Star cadets may be assigned to light stoves. A stove should be monitored at all times by one person. Team leaders will supervise the fuelling and approve the location for use. When lighting the stove, watch for improper lighting procedures and flare ups. Provide guidance when necessary.

Boiling Water. Assign cadets to collect water for boiling. Cadets should have a partner when going near a natural water source. Boiling water is used for drinking and heating IMPs. When boiling water, determine the purpose and adjust the water level per pot. Boiling water requires fuel – water that is boiled but unused wastes fuel.

Field Stripping (IMPs). Red Star cadets learned how to field strip IMPs. However, there will be occasions when cadets missed being briefed on how to field strip an IMP. Team leaders should gather cadets in a group and identify the appropriate method to field strip an IMP before consumption.

Preparing Food. Meal hours and the preparation of food can be simplified through planning. Team leaders shall assign personnel to specific tasks such as, cook, water gatherer, stove lighter and food distributor. The idea is to make food preparation as organized as possible.

Coordinating Clean-Up of Garbage. Follow the “Leave No Trace” principles any time cadets use a site. It is our responsibility to try to leave the site clean with no trace of our presence. Be proactive, identify garbage points for cadets to dispose refuse during meals. Organize a garbage sweep after every meal.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS

- Q1. What tasks could be assigned when establishing a routine for meal preparation?
- Q2. When lighting stoves, what will a team leader do?
- Q3. What should be conducted after a meal has been consumed?

ANTICIPATED ANSWERS

- A1. The components of meal preparation team leaders will supervise are:
- lighting stoves;
 - boiling water;
 - field stripping IMPs;
 - preparing food; and
 - coordinating clean-up of garbage.
- A2. The team leader will approve the location for use, supervise fuelling and watch for improper lighting procedures.
- A3. A garbage sweep should be conducted after a meal.

Teaching Point 3

Discuss How a Team Leader Maintains the Bivouac Site

Time: 5 min

Method: Interactive Lecture



Bivouac sites become very busy and it takes leadership and supervision from all personnel to ensure the routine runs smoothly. Remind team leaders how they must step forward and be proactive, planning and assigning tasks to establish a routine for the bivouac site.

Bivouac sites present specific challenges to a team leader. While personnel are using resources and creating waste around the site, team leaders have to constantly monitor the site. Team leaders will maintain the bivouac site by:

Completing Routine Shelter Inspections. Once shelters have been erected and cadets continue the daily routine, team leaders will have to inspect shelters. Shelters may appear to be erected properly. However, an inspection may reveal problems. Problems could range from strings not attached and tents not securely pegged down, to rips or holes in a tent. Identifying and correcting these problems will avoid bigger problems when they are least desired (at night with no light).

Tracking and Storing Equipment. The daily use of a bivouac site depends on the supplies and equipment the unit has brought to the site. Team leaders will be responsible to track the equipment and stores. To track equipment and stores, make a record of the individuals who are in possession of the supplies. Returned equipment will be entered as returned. Review the record daily to identify if any items have gone missing. Notify supervisors if equipment is identified as missing.

Replenishing Water Sources. Bivouac sites will either have a natural water source nearby or have a storage reservoir for personnel to use. Natural sources will always be plentiful and will not require replenishing however natural sources should be regularly monitored for contamination. Contamination can come in many forms however most notably are human waste or natural signs such as changes in water colour, dead fish or animals.

Bivouac sites that use a storage vessel for water, must have the water level monitored. If consumption is high, it will be necessary to schedule regular water refill runs. Restricting consumption to conserve water should be avoided unless in an emergency situation that requires water rationing.

Emptying Garbage Points. Personnel occupying a bivouac site use materials, consume resources and food rapidly. The waste generated from personnel is disposed of in designated refuse locations. Team leaders must regularly monitor designated refuse locations and empty the receptacles when they are full and replenish the collection points for further use.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS

- Q1. How does a team leader maintain a bivouac site?
- Q2. How should team leaders track equipment in a bivouac site?
- Q3. Why should a team leader conduct routine shelter inspections?

ANTICIPATED ANSWERS

- A1. A team leader maintains a bivouac site by completing routine shelter inspections, tracking and storing equipment and replenishing water sources.
- A2. A team leader can track equipment in a bivouac site by recording issued equipment and reviewing logs of the present equipment status.
- A3. A team leader should conduct routine shelter inspections to look for problems with the set-up or for damage to tents.

END OF LESSON CONFIRMATION

QUESTIONS

- Q1. What does being a team leader mean when you have to supervise cadets?

- Q2. New cadets participating on a weekend FTX may experience difficulties with daily routine. What areas of daily routine would you expect cadets to experience the most difficulty? What can you as a team leader do to help the new cadets?
- Q3. When meals are being prepared, what should team leaders do to organize and ensure the meal runs smoothly?

ANTICIPATED ANSWERS

- A1. Being a team leader means that I will supervise cadets junior to me by working as a team with peers, providing guidance and knowledge to help junior cadets successfully complete challenges they are presented.
- A2. Answers will vary.
- A3. Team leaders should assign particular roles to cadets to ensure the meal preparation is organized.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Cadets who find themselves in a team leader role may experience power of position. This position of authority may lead them to believe they are not required to assist with certain tasks. It is exactly the opposite as they are encouraged to take this role as a position of experience to provide guidance and assistance to junior cadets with the challenges they face. Supervision is not only watching out for problems or concerns of danger but providing knowledge and demonstration skills to others who can learn from this and successfully face the challenges presented to them.

INSTRUCTOR NOTES/REMARKS

The cadet shall participate in the activity and where possible perform the duties of a team leader.

The team leader(s) will be debriefed on their performance as part of PO 303 (Perform the Role of a Team Leader, Chapter 3).

REFERENCES

N/A.



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SECTION 2

EO M321.02 – CONSTRUCT COMPONENTS OF A BIVOUAC SITE

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-703/PG-001, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Photocopy Annex A for each cadet.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for TP 1 to orient the cadets to the construction of a bivouac site.

Demonstration and performance was chosen for TPs 2 and 3 as it allows the instructor to explain and demonstrate constructing components of a bivouac site while providing an opportunity for the cadet to practice the skill under supervision.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall have constructed the components of a bivouac site.

IMPORTANCE

It is important for cadets to know as a team leader how to construct components of a bivouac site because on a weekend bivouac FTX, team leaders will be given small leadership roles to construct specific components of a bivouac site.

Teaching Point 1**Discuss the Components of a Bivouac Site**

Time: 10 min

Method: Interactive Lecture



Hand out with the sample bivouac site diagram and identify each feature as it is discussed. Cadets should already know components however may need some review.

COMPONENTS OF A BIVOUAC FEATURES

There are a variety of components which make up a bivouac site. Each component is characterized by its features, required building materials and location requirements.



Bivouac site components are listed below with a short description of the component followed by a list of required building materials and location requirements.

Headquarters (HQ). This feature acts as the central hub of the bivouac site. Most of the administration is conducted here. The HQ is the location of the Officer in Charge (OIC) and supporting staff. Communications and safety equipment may be located here as well.

The HQ can be a designated location or an actual shelter. Commonly the HQ is constructed with modular tentage. The size of the tent can range from one section to many sections depending on the field training exercise (FTX) requirements.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> complete section of modular tentage including front and rear panels grounding stakes tables chairs/benches duty officer station duty officer cot and sleeping area 	<ul style="list-style-type: none"> centrally located flat ground easily accessible

Supply. The supply is the point where all equipment not in use is held. This location has a designated Quartermaster (senior cadet, supply officer, etc). This feature is often situated close to the HQ or is located within the HQ. It is considered a secure location and is out of bounds to all except designated personnel.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> complete section of modular tentage including front and rear panels grounding stakes table chair(s) 	<ul style="list-style-type: none"> close to the HQ flat ground

First Aid Point. The first aid point is always placed at the centre of the bivouac site. Depending on the size of the bivouac site it may be reasonable to set up many points to quickly provide access to first aid equipment.



A primary first aid station may be set up to deal with more serious injuries. This location can be inside erected modular tentage and may contain a field first aid kit, spinal board, neck brace, stretcher, wool blankets and a cot.

Materials that make up a first aid point are:

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> stretcher emergency first aid kit fire blanket x 2 spinal board neck brace table chairs 	<ul style="list-style-type: none"> centre of bivouac site

Fire Point. This feature is used to combat any fires that arise. The fire point, like the first aid point, is a first response point and must be centralized and accessible in an emergency. Fire points should be set up near the sleeping areas, cooking areas, and Petroleum, Oils and Liquids (POL) point. If the bivouac site is large and spread out, additional fire points shall be set up.

The fire point should contain Class A fire extinguishers, with the exception of the POL fire point where a Class B fire extinguisher should be available. Materials that make up a fire point are:

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> fire broom shovel 13.7 L (3 gallon) bucket filled with sand fire extinguisher fire point beacon fire siren 	<ul style="list-style-type: none"> centralized and easily accessible more than one may be required


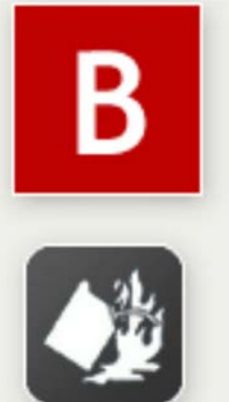
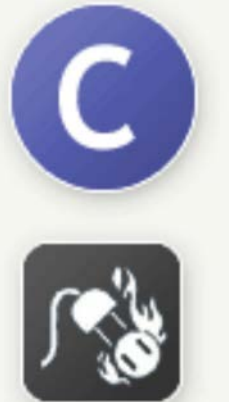



It is not uncommon to be using areas that require a set amount of fire points with specific fire equipment. Be sure to check with the authority of the property being used.

There may be specific guidelines or regulations that must be followed with regards to fire safety equipment. These regulations are very common on Canadian Forces Bases.



Fire extinguishers labelled to the class of fire they can extinguish. The types of extinguishers are:

			
<p>Class A, Ordinary Combustibles:</p> <ul style="list-style-type: none"> • trash • wood • paper 	<p>Class B, Flammable Liquids:</p> <ul style="list-style-type: none"> • oils • grease • tar • gasoline • paint thinners 	<p>Class C, Electricity:</p> <ul style="list-style-type: none"> • live electrical equipment 	<p>Class D, Combustible Metals:</p> <ul style="list-style-type: none"> • magnesium • titanium

POL Point. The POL point is a designated area for the storage of fuels, flammable and dangerous liquids. This area is to be clearly marked (white mine tape works well). A drip pan must be present to catch any spills during refuelling. Materials that make up a POL point are:

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> • mine tape • drip pan • marker tape • spill kit • identifying beacon 	<ul style="list-style-type: none"> • 100 m from bivouac site • flat ground • clear and open area • no overhanging branches • minimum 200 m from natural water source

In/Out Route for a Safety Vehicle. The feature is used to control vehicle traffic. It assists in keeping the site safe, and prevents undue wear and tear on the environment. An in/out route sign is all that is required for the materials for this feature.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> signage 	<ul style="list-style-type: none"> route should not travel through active areas

Parking Area. This area is for parking exercise support vehicles and should be clearly identified. The parking area will be equipped with drip pans that are placed under the engine of every vehicle.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> drip pans mine tape parking sign 	<ul style="list-style-type: none"> clear area room for additional vehicles to park room to turn a vehicle around

Form-Up Point. This point is a designated large area where personnel will gather when called to muster or during an emergency. Often times it is used for mass briefings. There are no materials required for this area, however it is a place that is verbally identified to the group during the safety briefing.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> sheltered/unsheltered clear open area

Water Point. This location is for the storage and drawing of drinking water. It is often placed in a centralized location. This can also be a natural water source. There are no materials required for this area. It is a place that is verbally identified to the group during the safety briefing.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> water jerry cans 	<ul style="list-style-type: none"> centralized area easily accessible if natural source is used

Ablutions Area. This area is the designated washroom. Bivouac sites will have portable chemical toilets or designated facilities to use. This area will be located downwind at least 60 m (200 feet) away from the sleeping, eating and water areas. There are no materials required for this area, however it is a place that is verbally identified to the entire group upon arriving at the bivouac site.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> portable chemical toilets or designated facilities 	<ul style="list-style-type: none"> downwind at least 60 m (200 feet) away from sleeping, eating and water areas.

Cooking Area. This area is designated for the preparation of food. The best location is a durable surface such as a flat rock or sandy area. The cooking area should be located no more than 10 m away from the eating area to prevent people from milling around hot stoves and boiling water. This area has no specific required materials to make a cooking site however it is verbally identified to the entire group upon arriving at the bivouac site.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> durable surface (flat rock or sandy area) open area, no significant overhanging trees or branches close to the eating area

Eating Area. This is a central point for all foods to be consumed. This will assist in the control of waste and garbage that is a by-product of food consumption, especially in areas with high animal activity. There are no materials required for this area, however it is verbally identified to the group upon arriving at the bivouac site.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> N/A 	<ul style="list-style-type: none"> sheltered area

Garbage Point. This is the central point for the collection and storage of garbage. It is located away from the main bivouac site and is animal proof (garbage is stored in garbage bins, tree hangs or vehicles). Materials and equipment that make up the garbage point are:

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> garbage cans dumpster garbage hang 	<ul style="list-style-type: none"> 100 m (328 feet) away from the bivouac site animal proof

Sleeping Areas. The sleeping areas should be placed upwind of the cooking area, on flat ground. The areas for sleeping will be divided into male and female lines and spread out. Female and male markers can be placed to identify tent location. There are no specific materials required for this area. Sleeping areas are verbally identified to the group upon arriving at the bivouac site.

Required Building Materials	Location Requirements
<ul style="list-style-type: none"> female and male zone identification markers 	<ul style="list-style-type: none"> flat ground clear of major debris female and male separation

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

- Q1. What are five components of the bivouac site?
- Q2. Where should a first aid point be set up?
- Q3. What are the location requirements for a POL point?

ANTICIPATED ANSWERS

- A1. Any of the following five components will suffice:
- headquarters,

- supply,
- first aid point,
- fire point,
- POL point,
- in/out route for a safety vehicle,
- parking area,
- form-up point,
- water point,
- ablutions area,
- cooking area,
- eating area,
- garbage point, and
- sleeping areas (male and female).

A2. The first aid point is always placed at the centre of the bivouac site.

A3. Location requirements for a POL point are:

- 100 m from bivouac site,
- on a flat surface,
- in a clear and open area,
- no overhanging branches, and
- 200 m from natural water source.

Teaching Point 2

Explain, Demonstrate and Have the Cadets Establish Components of a Bivouac Site

Time: 15 min

Method: Demonstration and Performance



Cadets will be expected to establish specific components of a bivouac site in this lesson.

Explanations and demonstrations may be limited as most cadets will have a working knowledge of each component through their previous experiences on FTXs and from the descriptions in TP1.

Explain and demonstrate where necessary how to establish a component of a bivouac site.

ACTIVITY

OBJECTIVE

The objective of this activity is to have the cadets establish and mark components of a bivouac site.

RESOURCES

- Sample bivouac site diagram,
- Mine tape,
- White bristol board,
- Markers,
- Twine, and
- Pocket knife (one per group).

ACTIVITY LAYOUT

Cadets will be responsible to lay out the components of a bivouac site.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into groups of no more than five.
2. Assign each group an equal number of bivouac components to establish from the following list:
 - (a) headquarters,
 - (b) supply,
 - (c) first aid point,
 - (d) fire point,
 - (e) POL point,
 - (f) in/out route for a safety vehicle,
 - (g) parking area,
 - (h) form-up point,
 - (i) water point,
 - (j) ablutions area,
 - (k) cooking area,
 - (l) eating area,
 - (m) garbage point, and
 - (n) sleeping areas (male and female).
3. To establish a component of bivouac site, have the cadets label each point using the bristol board and markers.
4. Give the groups a tour of the identified locations.
5. Five minutes will be used for a group tour of the identified locations.
6. Debrief the group about each component.

SAFETY

Cadets will be exploring the area that is expected to be the bivouac site. Set boundaries for the cadets to use as the bivouac site.

CONFIRMATION OF TEACHING POINT 2

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

Teaching Point 3
**Explain, Demonstrate and Have the Cadets Construct
Components of a Bivouac Site**

Time: 60 min

Method: Demonstration and Performance



Cadets will be expected to construct specific components of a bivouac site in this lesson.

Most cadets will have a working knowledge of each component through their previous experiences on FTXs.

Explain and demonstrate how to construct each component where necessary.

The set-up of a modular section may be the most difficult task to the cadets.

Take 20 minutes and demonstrate how to set up a modular section.

ACTIVITY

OBJECTIVE

The objective of this activity is to have the cadets construct specific components of a bivouac site.

RESOURCES

Resources for the following bivouac site components are listed in TP1:

- headquarters,
- supply,
- first aid point,
- fire point, and
- POL point.

ACTIVITY LAYOUT

Cadets will be required to physically construct the following components:

- headquarters,
- supply,
- first aid point,
- fire point, and

- POL point.

In the last activity, each component should have been previously assigned a position within the bivouac site. Cadets will position their component at its designated location.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into equal groups of no more than five.
2. Give a 20 minute demonstration on how to set up a section of modular tent.
3. Assign each group one component to construct.
4. Give each group 30 minutes to construct their component.
5. Ten minutes will be used for a group tour of the constructed components.
6. Debrief the group about each component.

SAFETY

CONFIRMATION OF TEACHING POINT 3

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

END OF LESSON CONFIRMATION

The cadets participation in constructing components of a bivouac site will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Team leaders who have been assigned to construct components of a bivouac site will be expected to have knowledge of a bivouac site layout and its components. Practicing how to situate the appropriate bivouac site component will prepare team leaders to lead a group of junior cadets in a similar task.

INSTRUCTOR NOTES/REMARKS

Additional instructors may be required to assist the construction of each bivouac component in TP 3.

The cadet shall participate in the activity and where possible perform the duties of a team leader.

The team leader(s) will be debriefed on their performance where applicable as part of PO 303 (Perform the Role of a Team Leader, Chapter 3).

REFERENCES

A2-036 A-CR-CCP-121/PT-001 Director Cadets 3. (2000). *Royal Canadian Army Cadet Reference Book*. Ottawa, ON: Department of National Defence.

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SECTION 3

EO C321.01 – IDENTIFY METHODS OF WASTE DISPOSAL IN THE FIELD

Total Time:	30 min
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PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-703/PG-001, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Make slides or handouts of Figures 12-3-6 to 12-3-8.

Choose an area in which each pair of cadets can find alternative sources of toilet paper.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for TPs 1 and 2 as it allows the instructor to present background information about field hygiene and environmentally conscious waste disposal.

A practical activity was chosen for TP 3 as it is an interactive way to introduce the cadets to natural materials in the field that can be used in place of toilet paper.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall have identified methods of waste disposal in the field.

IMPORTANCE

It is important for cadets to understand how to safely dispose of waste in the field as wilderness areas are increasingly more populated and traditional waste disposal methods are being regarded as detrimental to the environment.

Teaching Point 1**Discuss Field Hygiene**

Time: 5 min

Method: Interactive Lecture



By emphasizing these points, the cadets will understand the importance of individual hygiene in the field. Human waste is the most frequent conveyor of intestinal diseases.

PRACTICING THE BASIC RULES OF HYGIENE**Change Clothes Regularly**

It is important to keep all clothing, especially undergarments and socks, as clean and dry as possible. Clothing, as well as the body, must stay clean and dry. Keeping clothes clean will lessen the chances of developing rashes and infections. Change clothes, especially socks and undergarments, regularly. Use foot powder when available.

Properly Dispose of Waste Water

There will always be a quantity of waste water from personal bathing and cooking in the field. Proper disposal of waste water will assist in preventing insect infestation.

Follow these steps to properly dispose of waste water:

1. Collect all large particles with a food strainer or cloth and place in the garbage.
2. Place the remaining waste water in a container.
3. Dig a small hole at least 60 m away from any water source.
4. Pour the waste water in the hole.
5. Fill in the hole with natural materials.

Wash Regularly

In order to minimize the spread of diseases, hand washing should be enforced when in the field. There are two common approaches to hand washing – soap and water and hand sanitizers.

It is important to always keep the hands clean. Although hand washing is preferred, having hand sanitizer is convenient when soap and water are not available. Dispose of all waste water.

Washing the body is very important and should be done daily. Pay special attention to areas of the body that are susceptible to rash and fungus infection (the scalp, the crotch, and between the toes).



All waste disposal (including human waste) should be a minimum of 60 m (200 feet) from water sources.

DIARRHEA

There are many ways one can develop diarrhea: viral or bacterial infection, contaminated food, food allergies, and soap in food.

While in the field, the major concern is how quickly diarrhea increases water loss.

Diarrhea Which Requires Evacuation

Conditions that will require evacuation include:

- fever,
- presence of blood,
- shock,
- diarrhea or vomiting lasting longer than 24 hours,
- pain lasting longer than 24 hours, and
- any abdominal pain.

Treatment for Diarrhea

The simplest treatment for diarrhea is:

1. Replace lost fluids orally with clear liquids. Encourage patient to drink slowly in small sips. If fluids are not replenished in this way, further dehydration will occur.
2. Once clear liquids are accepted, move the patient to simple carbohydrates: bread, rice and toast (BRAT).
3. Continue giving fluids. Tea may be included.
4. Slowly move back to normal diet, and continue giving fluids.

WATER PATHOGENS

Water pathogens are micro-organisms living in water that are capable of causing human disease. They can be classified into three types: bacteria, viruses, and protozoan parasites.

Although bacteria are a natural part of life, some bacteria (particularly in water) lead to serious illness such as giardiasis or cryptosporidiosis.

Viruses and protozoa are found in surface water that has been contaminated by animal or human feces.



It is crucial to filter and/or purify all water in the wilderness.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

- Q1. What are the basic rules of hygiene?
- Q2. How is diarrhea contracted?
- Q3. What are water pathogens?

ANTICIPATED ANSWERS

- A1. The basic rules of hygiene are:
- change clothes regularly;

- properly dispose of waste water; and
- wash regularly.

A2. Diarrhea may develop through viral or bacterial infection, contaminated food, food allergies, and soap in food.

A3. Water pathogens are micro-organisms that can cause human disease.

Teaching Point 2

Discuss Latrine Selection

Time: 10 min

Method: Interactive Lecture



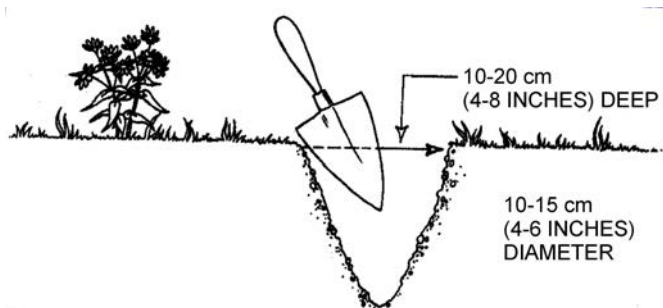
This TP is intended to familiarize cadets with the topic of outdoor toilets, and generate interest in using accepted forms.

SURFACE DISPOSAL

Surface disposal is the least accepted form of waste disposal in the wilderness. Surface disposal should be avoided at all costs. When training, cadets will be informed of the acceptable form of disposal.

CATHOLES

Catholes are the most acceptable form of waste disposal other than packing the waste out. Catholes should be located at least 60 m (200 feet) away from any water source, campsite or trail. The cathole should be 10–20 cm (4–8 inches) deep and approximately 10–15 cm (4–6 inches) in diameter. The most suitable area for a cathole would be in organic soil rich in micro-organisms in a moist area that still receives a fair amount of sunlight.



A. McGivney, *Leave No Trace: A Guide to the New Wilderness Etiquette*, Mountaineer Books. (p. 64)

Figure 12-3-1 Cathole



Demonstrate cathole digging.

LATRINES

Considered a multi-person cathole, latrines should only be built when occupying a site longer than two nights or when there are more than 10 people in a group.

Latrines should be a minimum of 60 m (200 feet) away from a water source, campsite, or trail. They should be wider than long and a minimum of 30 cm (1 foot) deep. Latrines should be filled in when the waste is 10–15 cm (4–6 inches) from the surface.



Human waste can take 1–3 years to decompose. Be aware of where waste is deposited.

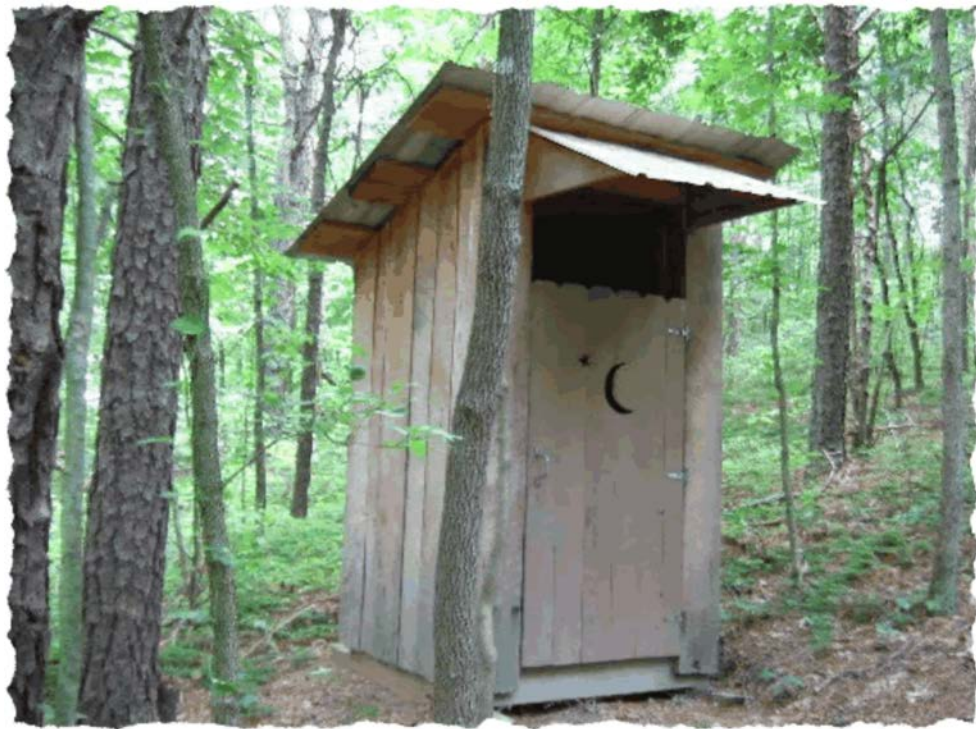


Human urine may cause leaf damage and browning on some plants. In addition, certain animals are attracted to the salt in human urine, often eating covered plants.

WILDERNESS TOILETS

Outhouses

In order to prevent the spread of disease, many provincial and national parks are building new outhouses with sustainable technology. Older outhouses in parks should be used whenever available, despite their sometimes undesirable appearance.



<http://blogs.redding.com/redding/mbeauchamp/archives.gif>. Retrieved March 18, 2008, from <http://blogs.redding.com/redding/mbeauchamp/archives.gif>

Figure 12-3-2 Outhouse

Thunder Boxes

Often simply a box with a hole and seat, thunder boxes can be found in wilderness areas. Thunder boxes are built by earth-conscious hikers and area users to prevent human waste from littering the ground.



barkingspace.wordpress.com. Retrieved March 18, 2008, from <http://www.figtography.com/Blog/thunderbox.jpg>

Figure 12-3-3 Thunder Box

Ammo Cans

Traditionally used by paddlers and river guides in wilderness where regulations require the removal of human waste, ammo cans, sometimes called groovers, are water tight and sealed. Ammo cans are particularly useful on water as the can is very durable and floats.



Surplus & Outdoors. Retrieved March 18, 2007, from <http://www.surplusandoutdoors.com/shop/877/shopsr89.html>

Figure 12-3-4 Ammo Can

Buckets

In areas above the tree line, mountaineers often use large plastic buckets as toilets. The buckets are sometimes lined with a garbage bag while in use. When the trip is done, or when the bucket is full, the bag is tied off and the bucket is carried back down, and subsequently dumped in the proper facilities.

COMMERCIAL WASTE UNITS

Composting Toilets

The most popular commercial unit on the market, a composting toilet, comes in various models and can be seen in most provincial and national parks within Canada. The simplest forms of composting toilets use sawdust or mulch which is then placed over a deposit.

Pack-It Toilet

Marketed as an ultra light personal toilet kit, the Pack-it Toilet was developed as a way to try to help the wilderness. People invariably do not want to waste time with packing out waste. With the Pack-it Toilet, people can take responsibility for their waste in a comfortable way.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS

- Q1. What is the most acceptable form of waste disposal?
- Q2. When are latrines used?
- Q3. What is a composting toilet?

ANTICIPATED ANSWERS

- A1. Catholes.
- A2. Latrines should only be built when occupying a site longer than two nights or when there are more than 10 people in a group.
- A3. Composting toilets use sawdust or mulch which is then placed over a deposit.

Teaching Point 3

Select Natural Toilet Paper

Time: 10 min

Method: Practical Activity



This TP is designed to give cadets the opportunity to select alternatives to toilet paper.

Cadets should be reminded that they do not need to remove sources from live trees or bushes.

There was once a time when there was no toilet paper. During this time, and in today's world during times of potty emergencies, natural toilet paper can be used.



With all the choices for substitute toilet paper, the choice of living plants should be a last resort. Pick a leaf here, a leaf there; do not pick clumps.

Do not pick vegetation or leaves in parks or restricted areas.

LEAVES

Large, soft leaves are the best. If needed, small leaves can be used. Use sparingly.

Inspect the leaves before using. Leaves can sometimes hold sap or other sticky substances, be covered in bristles or barbs, or more seriously be covered in hispid (short stiff hairs) which can penetrate the skin.

Autumn foliage, in many colours, offers a selection of leaves, some of which will stay pliable through the winter months.

The most common trees and source of leaves in Canada are:

- alder,
- beech,
- birch,
- chestnut,
- elm,
- hickory,
- maple, and
- oak.



Natural Resources Canada, 2002, Round Leaves. Retrieved March 22, 2007, from http://www.cfi.scf.mcan.gc.ca/imfec-idecf/hosttrees/deciduous/leaves_round.html

Figure 12-3-5 Round Leaf



Review photos of poison ivy, poison oak, and poison sumac with cadets.



Poison ivy, poison oak, and poison sumac are not to be used for alternative sources for toilet paper.



Canadian Weed Science Society. Retrieved March 18, 2008, from www.cwss-scm.ca/weeds/images/F22_centralPoisonIvy.jpg

Figure 12-3-6 Poison Ivy



Agriculture and Agri-Food Canada. Retrieved March 18, 2008, from http://res2.agr.gc.ca/ecorc/poison/vernix_e.htm

Figure 12-3-7 Poison Sumac



*The Coloma Valley: Where the Gold Rush Began: Coloma Valley Nature Reference.
Retrieved March 18, 2008, from www.coloma.com/reference/401-1-18-poisonoak.jpg*

Figure 12-3-8 Poison Oak

MOSS

Using moss has both advantages and disadvantages. The advantage with moss is the softness, but the disadvantage is that removing a small amount of moss will affect a large area of moss.

GRASSES

Grasses will work well, but can be a hazard due to slicing leaves. Grasses can cut skin similar to a paper cut. If using bamboo, be extra careful to avoid such injuries.

EVERGREENS

These have leaves that look like needles. Coniferous trees generally have persistent foliage (leaves) consisting of needles or scales. Found in certain areas, evergreens are often the only choice. Be sure to inspect the greens for sap before using.

The most common coniferous trees in Canada are:

- cedar,
- fir,
- hemlock,
- larch,
- pine,
- spruce, and
- tamarack.



The Canadian Encyclopedia, 2007, Conifers, Copyright 2007 by Alberta Forest Service. Retrieved March 22, 2007, from <http://www.thecanadianencyclopedia.com/index.cfm?PgNm=TCE&Params=A1SEC818695>

Figure 12-3-9 Coniferous Needles

WATER

Regarded by some as the cleanest, water wiping has been practiced for years.

The Water Wipe. Using a small container, fill it with water. Bring the container to the chosen spot. When finished, simply trickle water into the free hand, never contaminating the fresh water, and use it to splash or wipe.

Snow is also an excellent alternative to toilet paper. There is an initial shock towards the feeling of the snow on the area, but will leave the area clean.



In certain countries, it is customary to wipe only with the left hand and eat with the right hand.

ACTIVITY

Time: 5 min

OBJECTIVE

The objective of this activity is to allow cadets to identify what natural materials may be used as a substitute for toilet paper.

RESOURCES

N/A.

ACTIVITY LAYOUT

Choose an area in which each pair of cadets can find alternative sources of toilet paper.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into pairs (same gender).

2. Inform cadets of the boundaries.
3. Have cadets identify natural sources of toilet paper.
4. Cadets should check the source to ensure:
 - (a) there are no sticky substances attached to the source;
 - (b) there are no insects; and
 - (c) the source is appropriate.

SAFETY

- Cadets will respect boundaries for the activity.
- Cadets will remain within eyesight of their partner at all times.

CONFIRMATION OF TEACHING POINT 3

The cadets participation in the activity in TP 3 will serve as the confirmation of this TP.

END OF LESSON CONFIRMATION

The cadet's participation in identifying natural sources of toilet paper will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Properly disposing of waste in the field is essential to personal hygiene, preventing illness and protecting the wilderness setting we all enjoy.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

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- C0-111 (ISBN 0-9740820-2-3) Tawrell, P. (2006). *Camping and Wilderness Survival: The Ultimate Outdoors Book* (2nd ed.). Lebanon, NH: Paul Tawrell.
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- C2-016 (ISBN 1-4000-5309-9) Curtis, R. (2005). *The Backpacker's Field Manual: A Comprehensive Guide to Mastering Backcountry Skills*. New York, NY: Three Rivers Press.
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ROYAL CANADIAN ARMY CADETS
SILVER STAR
INSTRUCTIONAL GUIDE



SECTION 4

EO C321.02 – IDENTIFY SAFETY CONSIDERATIONS WHEN TRAVELLING OVER SNOW AND ICE

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-703/PG-001, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for this lesson, as it introduces travelling over snow and ice and generates interest in being outside in the winter.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall have identified safety considerations when travelling over snow and ice.

IMPORTANCE

It is important for cadets to understand the safety implications when travelling over snow and ice in order to remain safe when on a winter FTX or while enjoying winter sports.

Teaching Point 1**Describe Types of Snow and Ice**

Time: 20 min

Method: Interactive Lecture



Snow and ice change with heating and cooling, and are largely affected by weather. This TP is intended to introduce cadets to the different types of snow and ice.

SNOW

Snow. A type of precipitation in the form of crystalline water ice (snowflake). Snow is granular with an open soft structure and will remain on the ground until it melts into water.

Snow Pack. The accumulation of snow in an area.

TYPES OF SNOW

New Fallen Snow. Very loose and light. The snowflakes still have their multiple branches. This type of snow is excellent insulation.

Powder Snow. New, untouched freshly fallen soft snow. It can give the feeling of floating in a weightless environment. Powder can be packed in thick layers that form a natural pillow. Powder snow has low moisture content almost 97 percent of it being air and is favoured among skiers to perfect skills. In coastal regions, where there is higher humidity, the snow is heavier than in a continental region.

Wind-Packed Snow. Snow blown from one direction, compacted by the force of the wind. Wind packed snow is caused by the pressure exerted by wind causing a form of cold-heat hardening. In some areas, the snow surface is strong enough to hold weight and snowshoes are particularly useful.



Wind-packed snow is great for cutting blocks for igloos and other snow structures.

Sun Crust. Snow that had the upper layer melted and then refrozen. Usually on top of powder snow, sun crust snow is stronger than the powder snow below it due to the refreezing.



Sun crust is not very stable on a slope and can be dangerous when weighted.

Corn Snow. After thawing, corn snow occurs. The structure of the snow is very grainy at this point. Corn snow usually occurs in the spring, and can be strong enough to carry weight. Corn snow is produced during the cycle of melting and refreezing in the accumulated snow.



A layer of snow that has been sun crusted will become corn snow.

Rotten Snow. Caused by repeat melting and freezing and is found mostly on the south side of hills, or in lower levels of snow. Water will seep to the lower layers and will not freeze because it is insulated from the weather

by the covering snow layer. Rotten snow can resemble very small icicles, or candle ice. This snow is dangerous due to a risk of falling through.

Slush Snow. When the air temperature becomes warmer than the freezing point, the snow begins to melt and the water content becomes high. Slush snow absorbs water from melting snow. Slush snow is recognizable by depressions in the snow with darker or bluish snow areas. These areas show holes in the ice or an accumulation of water on the surface of the ice.

ICE

As water cools, it contracts in volume, reaching greatest density at 4 degrees Celsius (39 degrees Fahrenheit) where it begins the freezing process. Ice is a densely packed material formed from snow without air bubbles, or a crystalline solid which is brittle and transparent.

Ice can be frozen water or cold-heat packed snow like that of glaciers and icebergs.

TYPES OF ICE

Surface Ice. Found on land, over different surfaces, including man-made materials.

Candle Ice. Suspended vertical needles of ice that do not have a solid structure. Stepping on candle ice is like stepping on slush.

Lake Ice. The layer of frozen water that forms on the surface of the lake. Often the ice strength is dependent upon the conditions under which it was formed.



Lake ice 10 cm (4 inches) in thickness is generally considered safe to walk on. However, caution should always be used, as this is still dependent on the type of ice, how it was formed and how many layers there are. Ice thickness can also change depending on where one is on the lake, this is especially true where water is running into the lake, eg, from a stream, river, or man made discharge.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

- Q1. What is rotten snow?
- Q2. What is the best snow for building snow structures?
- Q3. What are the three kinds of ice?

ANTICIPATED ANSWERS

- A1. Rotten snow is snow found on the south side of hills, or lower levels of snow. It is caused by repeated melting and freezing.
- A2. Wind packed snow.
- A3. Surface ice, candle ice and lake ice.

Teaching Point 2**Discuss Characteristics of Snow and Ice**

Time: 5 min

Method: Interactive Lecture

CHARACTERISTICS OF SNOW AND ICE**Weight-Carrying Capacity**

Weight-carrying capacity is defined as the capacity of weight that can be supported by the snow. When the snow is packed hard, weight-carrying capacity is greater and movement is easier. Ice is often stronger, but movement is more difficult due to the slippery surface.

Sliding Characteristics

Important to skiers and snowboarders, sliding characteristics are how a material glides over the snow. The sliding characteristic varies greatly due to the type of snow.

Holding Capacity

Holding capacity is the ability to act upon ski wax to avoid backslapping. Backslapping is when the ski does not slide on the snow, but lifts from the snow causing a slapping noise. Holding capacity changes greatly with different types of snow, making different versions of wax a necessity.

CONFIRMATION OF TEACHING POINT 2**QUESTIONS**

- Q1. What is weight-carrying capacity?
- Q2. Explain sliding characteristics.
- Q3. Define holding capacity.

ANTICIPATED ANSWERS

- A1. Weight-carrying capacity is defined as the capacity of weight that can be supported by the snow.
- A2. Sliding characteristics are how a material glides over snow.
- A3. Holding capacity is the ability to act upon ski wax to avoid backslapping.

Teaching Point 3**Discuss Water Dangers**

Time: 10 min

Method: Interactive Lecture



This TP is designed to introduce cadets to the dangers of travelling over ice and snow in winter. This introduction does not provide cadets with skills or training to effectively select a route for a group.

WATER DANGERS

In the winter, hiking can be enjoyable, but like all outdoor activities there are dangers that need to be considered.

Frozen Waterway Travel

Frozen bodies of water including lakes, rivers and creeks are the most suitable routes for trails. Frozen waterway travel is an advantage as they are relatively flat and have little snow accumulation due to blowing wind.

The primary disadvantage of travelling on waterways is that the route can become unstable with sudden temperature changes.

Ice Route Selection

When travelling on ice, the most experienced person in the group should select the travel route.

Ice conditions can change quickly and should always be treated with suspicion, as there may be water under the snow surface (rotten snow). Areas where rotten snow is found should be bypassed.

Rivers with a stronger current will continue to flow below the ice cover even through the coldest temperatures.

Weak Ice

The strength of the ice varies with its structure and temperature. Snow cover or a warm period will weaken the ice. A sudden thaw can create cracks in the ice and weaken it more.



Weak ice should be avoided at all times.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS

- Q1. What is the primary disadvantage when travelling over frozen waterways?
- Q2. What should be remembered when travelling on an ice route?
- Q3. When should weak ice be avoided?

ANTICIPATED ANSWERS

- A1. The route may become unstable.
- A2. There could be flowing water under the surface.
- A3. Weak ice should be avoided at all times.

Teaching Point 4

Discuss Winter Travel

Time: 20 min

Method: Interactive Lecture



This TP is designed to introduce cadets to the dangers to consider when travelling in winter conditions.

Instructors should present the information emphasizing the importance of safe travel.

WINTER TRAVEL

Winter travel is more complicated and more difficult than summer travel. Snow pack affects mobility in a variety of ways, and winter requires cold weather equipment.

Planning for the cold and preparing for a winter trip does not just mean planning for what will happen. It is important to pack extra equipment (eg, an extra pair of socks, emergency blanket, or fire starter) that will be beneficial should something unexpected arise.

Heavy snow cover impedes movement, both cross-country and on road. A route which was passable during the day may become impassable at night due to falling temperatures re-freezing the surroundings.

Basic Rules for Winter Travel

There are some basic rules everyone travelling outdoors in the winter should follow:

- Plot the route on a map and highlight key landmarks.
- Ensure all members of the group are fully prepared and aware of the route and possible difficulties.
- Have a trail breaking rotation so the lead person does not get tired.
- Travel in single file.
- Ensure equipment is checked and evenly distributed.
- Dress consistent with the weather to reduce sweating.
- Stop 15 minutes into the hike to adjust equipment.
- Use the buddy system in northern climates.
- Watch carefully for signs of frostbite.

Use of Snowshoes or Skis

Snowshoes and skis both provide floatation (ability to stay on the top layer) on snow. They are often useful for cross-country travel and have gained popularity with those travelling in winter. Depth and type of snow will determine the level of support and the speed of movement.

Snowshoes are particularly useful in confined areas. Carrying and transporting snowshoes is simple due to their size and weight. On steep slopes however, snowshoes have limited traction and the snowshoe will often slide, causing the wearer to lose their footing.

Skiing is often harder in deeper snow, and the trail breaker must be switched often. Skiing is versatile in most terrains, particularly in areas with hills as skiers are able to gain speed on the downward slope.

WINTER TRAVEL TIME

	Unbroken Trail	Broken Trail
On Foot:		
• Up to 1 foot of snow	1–2 mph	1.5–2 mph
• Over 1 foot of snow	0.24–0.75 mph	1.25–2 mph
Snowshoeing	1–2 mph	2–2.5 mph
Skiing	1–3.5 mph	3–3.5 mph

Tripping and Falling in the Snow

Snow cover blankets many terrain features and hides obstacles, such as stumps, brush, rocks, and ditches, that may cause tripping and falling.

A long pole or hiking stick should be carried and used to find obstacles. Any obstacles, including the smallest ones, should be avoided to prevent injury.

Best Time to Travel

In winter, travel time will vary from hour to hour. Generally the best time to travel is early in the morning after a cold night. This is when snow and ice are most stable.

Some travel guidelines include:

- Travel in shaded areas to avoid disturbing the stability of the snow in sunny spots.
- Days are shorter in winter, so timings should be adjusted to avoid overnight stays in dangerous areas.
- Avoid travel in snow higher than calf deep. Travelling in deep snow wastes energy and it is very difficult to see potential obstacles.
- Travelling in late winter should be given special consideration as the snow pack may be more unstable because of the warmer temperatures.

Trail Selection

Forest travel provides protection from wind. It is particularly important to plan routes in the winter to ensure a safe and protected route is followed. Special attention should be given to trail markings and signs.

Dangers of Winter Travel

Winter travel is more difficult than summer travel, and snow conditions will dictate when and how far a group moves.

Deep snow could hide trail markers and be prone to avalanches and ice patches.



If travelling in mountain areas, an avalanche course should be completed and the necessary equipment, such as an avalanche beacon, should be taken on all trips.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS

- Q1. What is the purpose of snowshoes?
- Q2. When is the best time of day to travel in winter?
- Q3. What are the basic rules for winter travel?

ANTICIPATED ANSWERS

- A1. Snowshoes provide floatation (ability to stay on the top layer of snow) in the snow.
- A2. Early in the morning after a cold night is the best time to travel.
- A3. The basic rules of winter travel are:
- Plot the route on a map and highlight key landmarks.
 - Ensure all members of the group are fully prepared and aware of the route and possible difficulties.
 - Have a trail breaking rotation so the lead person does not get overly tired.
 - Travel in single file.
 - Ensure equipment is checked and evenly distributed.
 - Dress consistent with the weather to reduce sweating.
 - Stop 15 minutes into hike to adjust equipment.
 - Use the buddy system in northern climates.
 - Watch carefully for signs of frostbite.

END OF LESSON CONFIRMATION

QUESTIONS

- Q1. What is powder snow?
- Q2. What are the considerations for ice route selection?
- Q3. What causes falling or tripping in the snow?

ANTICIPATED ANSWERS

- A1. Powder is new, untouched freshly fallen soft snow.
- A2. Ice conditions can change easily and should always be treated with suspicion, as there may be water under the snow surface. Areas where rotten snow is found should be bypassed.
- A3. Snow cover blankets many terrain features and hides obstacles to movement. Stumps, brush, rocks, ditches are all covered, obscuring potential obstacles.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Travelling on snow and ice can be hazardous to both personnel and equipment. Knowing the different types of snow and ice as well as the dangers inherent with winter travel, will assist cadets in making decisions on winter travel.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

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ROYAL CANADIAN ARMY CADETS

SILVER STAR

INSTRUCTIONAL GUIDE



SECTION 5

EO C321.03 – CONSTRUCT FIELD AMENITIES

Total Time:	180 min
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PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-703/PG-001, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

PRE-LESSON ASSIGNMENT

Photocopy handouts of field amenities located at Annex B. Each cadet should have a copy of each field amenity.

A selection of sticks, boughs and logs in different sizes should be gathered in order to aid cadets in construction and to prevent using live boughs.

APPROACH

Demonstration and performance was chosen for TP 1 as it allows the instructor to explain and demonstrate knots and lashings while providing an opportunity for the cadets to practice tying knots and lashings under supervision.

A practical activity was chosen for TP 2 as it is an interactive way to allow the cadet to experience building field amenities in a safe, controlled environment. This activity contributes to the development of building skills in a fun and challenging setting.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet, as a member of a group of four, shall have constructed two field amenities.

IMPORTANCE

It is important for cadets to understand the value of field amenities. Constructing field amenities is a fun way to incorporate knot tying in the field training site and make the site more comfortable. If ever in a survival situation, field amenities are also a way to combat boredom which is one of the seven enemies of survival.

Teaching Point 1

Explain, Demonstrate and Have the Cadets Practice Tying Lashings

Time: 45 min

Method: Demonstration and Performance



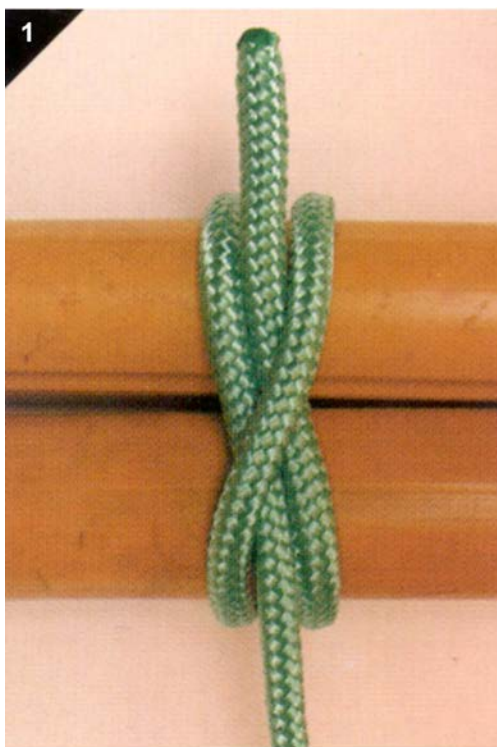
For this skill lesson it is recommended that instruction take the following format:

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.

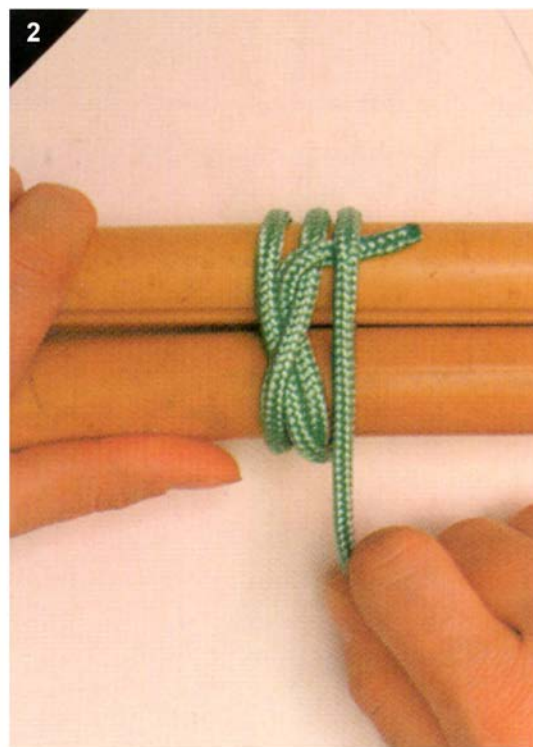
Note: Assistant instructors may be employed to monitor cadet performance.

ROUND LASHING

Also called a sheer lashing, the round lashing has two distinct uses. First, it creates an A-frame or set of sheer legs. Second, two or three round lashings can be used to bind poles together to make a longer horizontal pole.



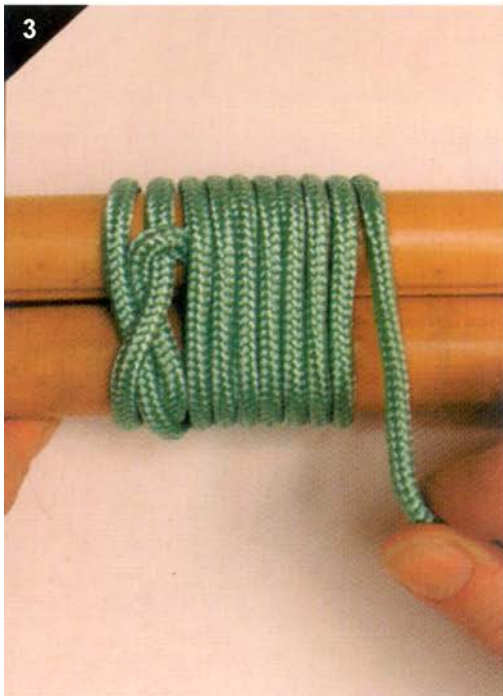
STEP ONE. MAKE A CLOVE HITCH AROUND BOTH POLES.



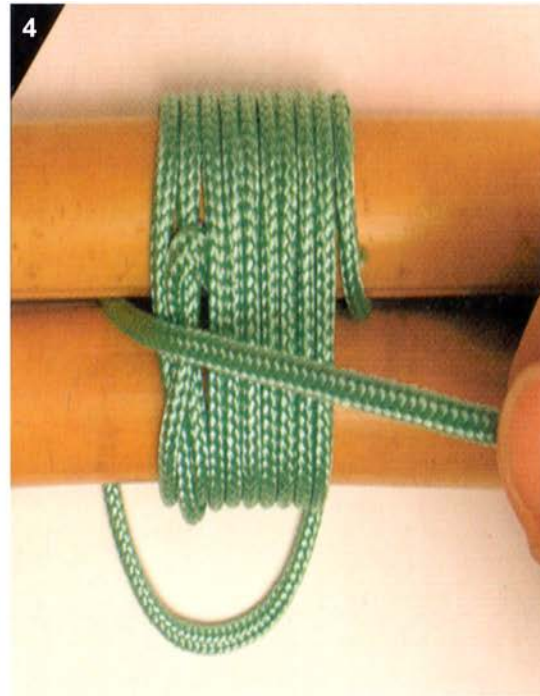
STEP TWO. WRAP THE STANDING END AROUND BOTH POLES, TRAPPING THE WORKING END OF THE CLOVE HITCH UNDERNEATH.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 184–185)

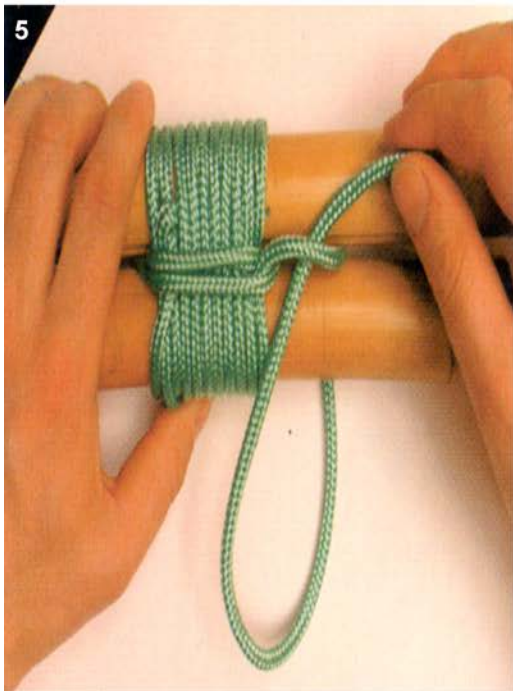
Figure 12-5-1 (Sheet 1 of 3) Round Lashing



STEP THREE. MAKE EIGHT TO TEN MORE WRAPS AROUND THE POLES.



STEP FOUR. BRING THE ROPE UP BETWEEN THE POLES AND MAKE TWO TIGHT TURNS PARALLEL TO THE POLES.



STEP FIVE. MAKE A CLOVE HITCH AROUND ONE OF THE POLES.



STEP SIX. ENSURE THE LASHING IS TIGHT AND SECURE.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 184-185)

Figure 12-5-1 (Sheet 2 of 3) Round Lashing



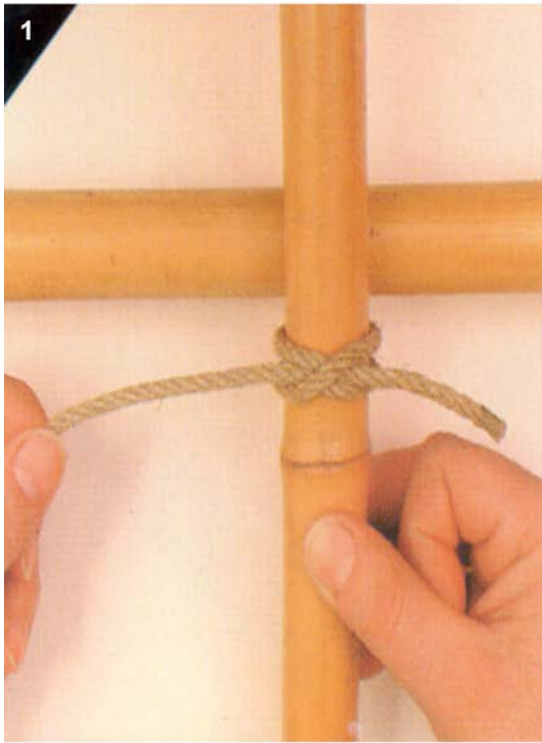
STEP SEVEN. OPEN THE LASHING TO CREATE AN A-FRAME.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 184–185)

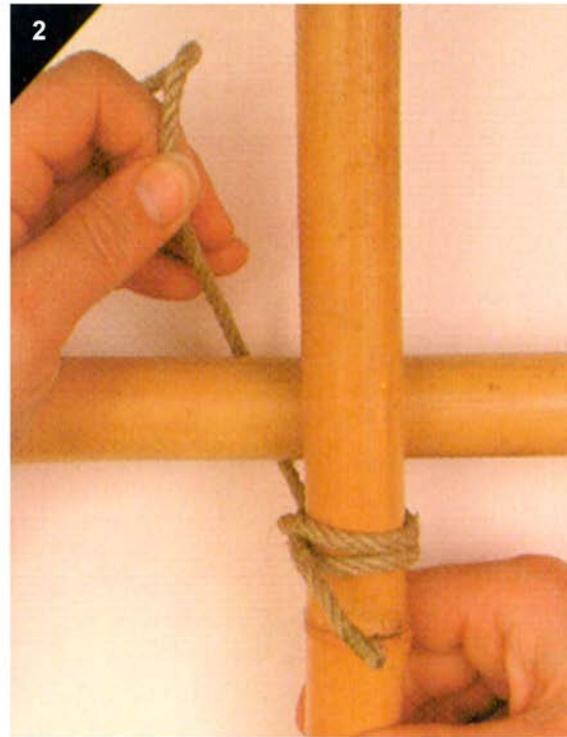
Figure 12-5-1 (Sheet 3 of 3) Round Lashing

SQUARE LASHING

A square lashing secures two poles together at 90 degrees. The rope 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.



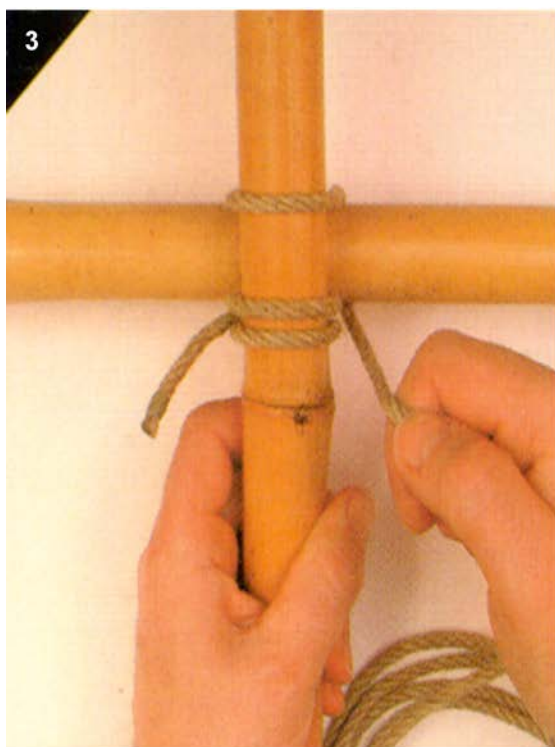
STEP ONE. WITH THE VERTICAL POLE ON TOP OF THE HORIZONTAL POLE, MAKE A CLOVE HITCH. THE VERTICAL POLE RUNS UP AND DOWN, AND THE HORIZONTAL POLE LEFT TO RIGHT.



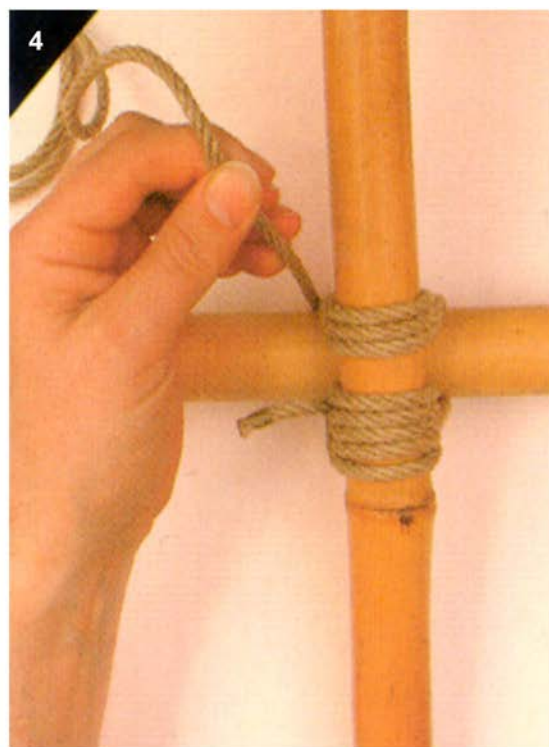
STEP TWO. BRING ALL OF THE ROPE AROUND AND BEHIND THE HORIZONTAL POLE.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 180-181)

Figure 12-5-2 (Sheet 1 of 4) Square Lashing



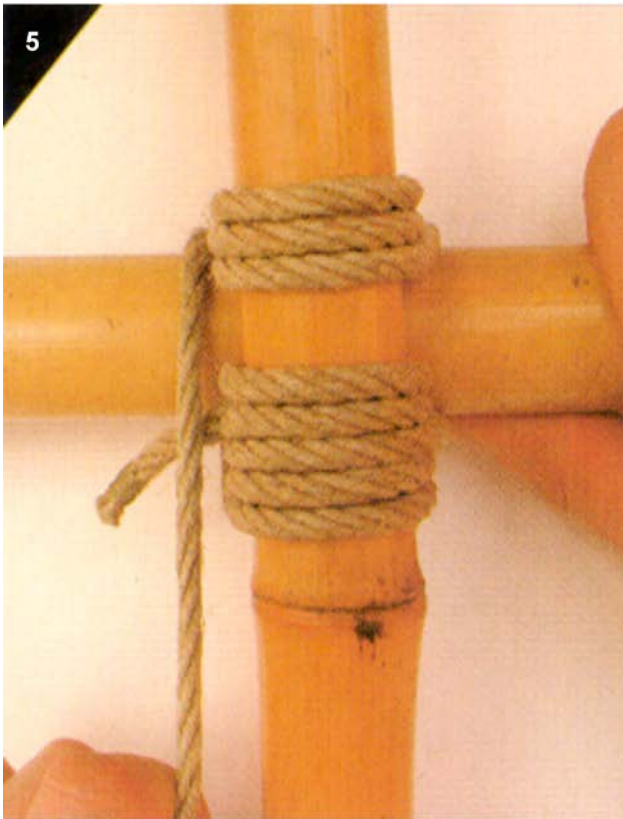
STEP THREE. TIGHTLY BRING THE ROPE OVER THE VERTICAL POLE AND BACK BEHIND THE HORIZONTAL POLE, BACK TO THE CLOVE HITCH.



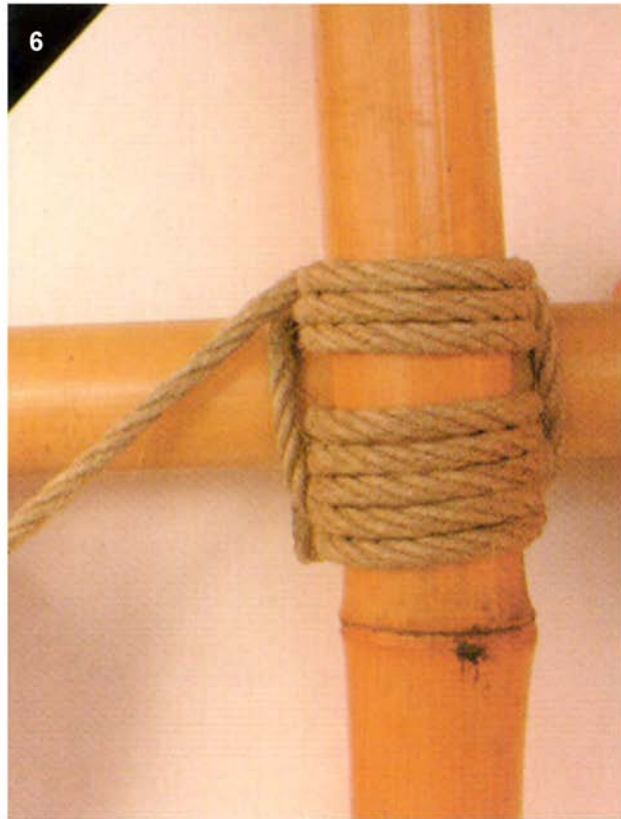
STEP FOUR. CONTINUE TO MAKE THREE COMPLETE TURNS AROUND THE POLES, PULLING THE ROPE TIGHT AFTER EACH TURN.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 180-181)

Figure 12-5-2 (Sheet 2 of 4) Square Lashing



STEP FIVE. AFTER PASSING THE CLOVE HITCH, TIGHTLY BRING THE ROPE TO THE HORIZONTAL POLE FROM BEHIND AND START WRAPPING AROUND THE TWO SIDES OF THE POLE. THESE WRAPS ARE CALLED FRAPPING TURNS.



STEP SIX. MAKE TWO COMPLETE SETS OF FRAPPING TURNS.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 180-181)

Figure 12-5-2 (Sheet 3 of 4) Square Lashing



STEP SEVEN. MAKE A CLOVE HITCH AROUND THE HORIZONTAL POLE.



STEP EIGHT. PULL TIGHT AND SECURE.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 180-181)

Figure 12-5-2 (Sheet 4 of 4) Square Lashing

TIMBER HITCH



The timber hitch is included because it is required for the diagonal lashing. It should not take a great amount of time to complete.



STEP ONE. TAKE THE STANDING END AND WRAP IT AROUND THE OBJECT, THEN AROUND THE STANDING PART OF THE ROPE.



STEP TWO. TWIST THE WORKING PART AROUND ITSELF BY WRAPPING IT AROUND THE WORKING END.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 139)

Figure 12-5-3 (Sheet 1 of 2) Timber Hitch



STEP THREE. CONTINUE MAKING TWISTS UNTIL THE TWISTED ROPE IS LONG ENOUGH TO GO AROUND THE OBJECT. PULL ON THE STANDING PART TO TIGHTEN THE HITCH.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 139)

Figure 12-5-3 (Sheet 2 of 2) Timber Hitch

DIAGONAL LASHING

A diagonal lashing is used at a crossing point, to prevent poles from springing apart.



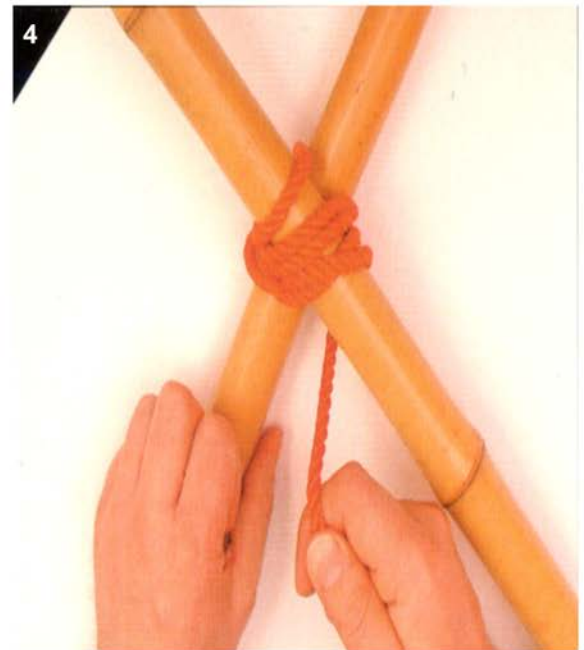
STEP ONE. MAKE A TIMBER HITCH AROUND THE TWO CROSSED POLES.



STEP TWO. MAKE A TURN AROUND THE TWO CROSSED POLES, PULLING THE TIMBER HITCH TIGHT.



STEP THREE. MAKE THREE MORE COMPLETE TURNS IN THE SAME DIRECTION, PULLING THEM TIGHT.



STEP FOUR. CHANGE DIRECTION BY COMING AROUND ONE OF THE POLES.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 182-183)

Figure 12-5-4 (Sheet 1 of 4) Diagonal Lashing



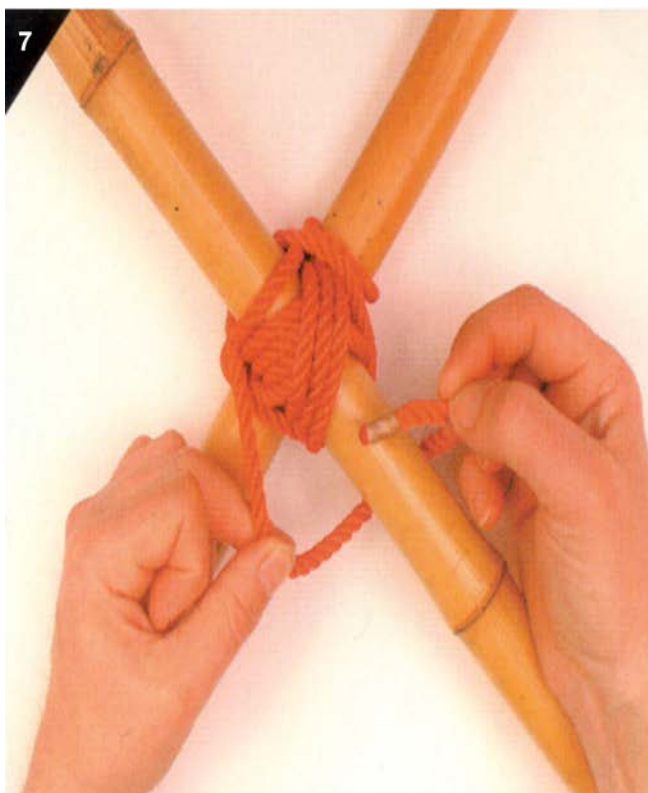
STEP FIVE. MAKE FOUR FULL TURNS AROUND THE TWO POLES AT RIGHT ANGLES TO THE ORIGINAL TURNS, PULLING THEM TIGHT.



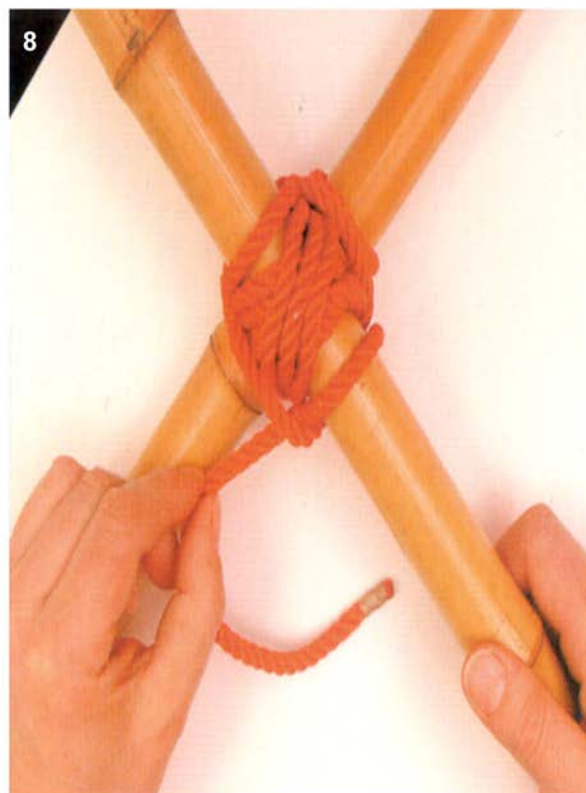
STEP SIX. TAKE THE WORKING END OF THE ROPE AROUND ONE OF THE POLES, MAKING A FRAPPING TURN.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 182-183)

Figure 12-5-4 (Sheet 2 of 4) Diagonal Lashing



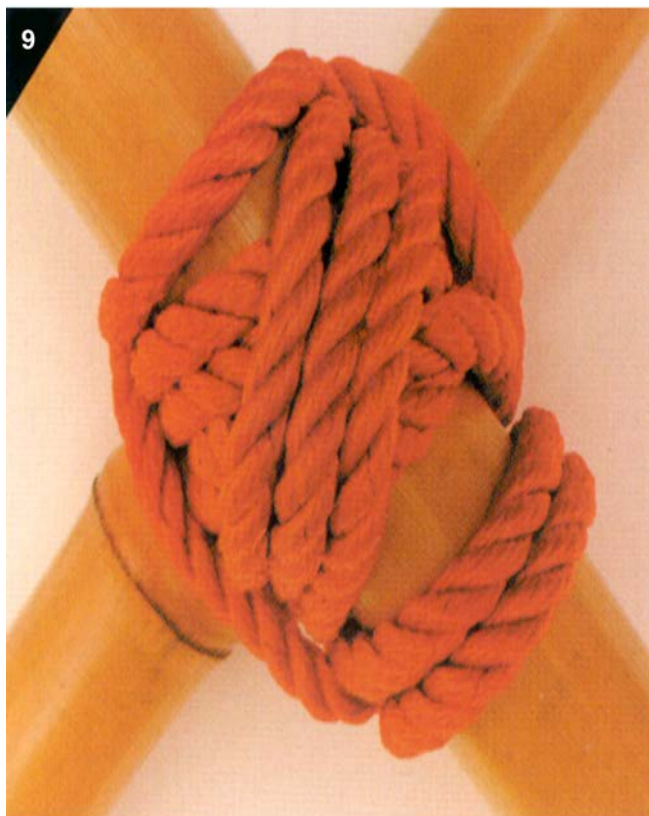
STEP SEVEN. MAKE TWO COMPLETE FRAPPING TURNS.



STEP EIGHT. MAKE A CLOVE HITCH.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 182-183)

Figure 12-5-4 (Sheet 3 of 4) Diagonal Lashing



STEP NINE. PULL THE LASHING TIGHT AND SECURE.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 182-183)

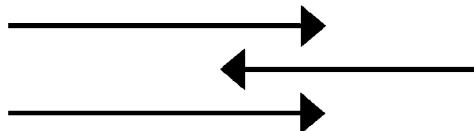
Figure 12-5-4 (Sheet 4 of 4) Diagonal Lashing

FIGURE-OF-EIGHT LASHING

The figure-of-eight lashing is used to join three poles together, to create a tripod.

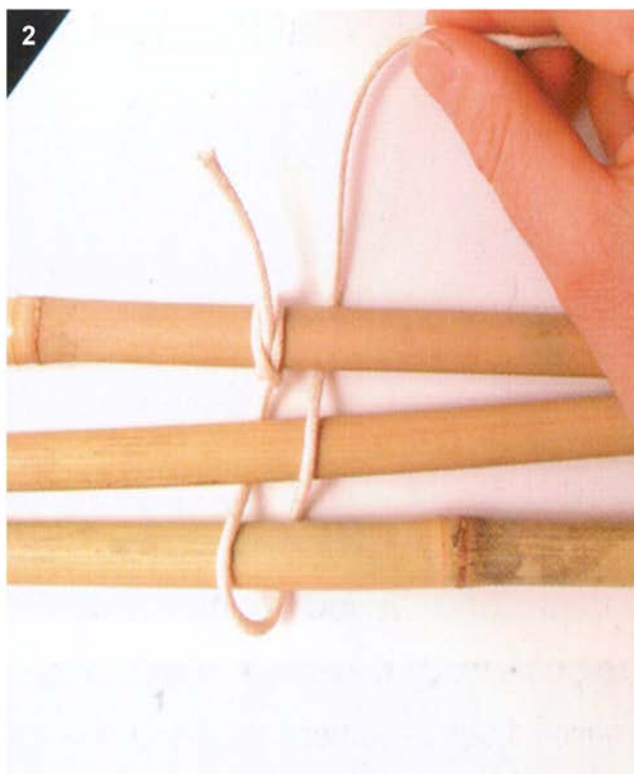


When making a figure-of-eight lashing, the poles shall be placed staggered.





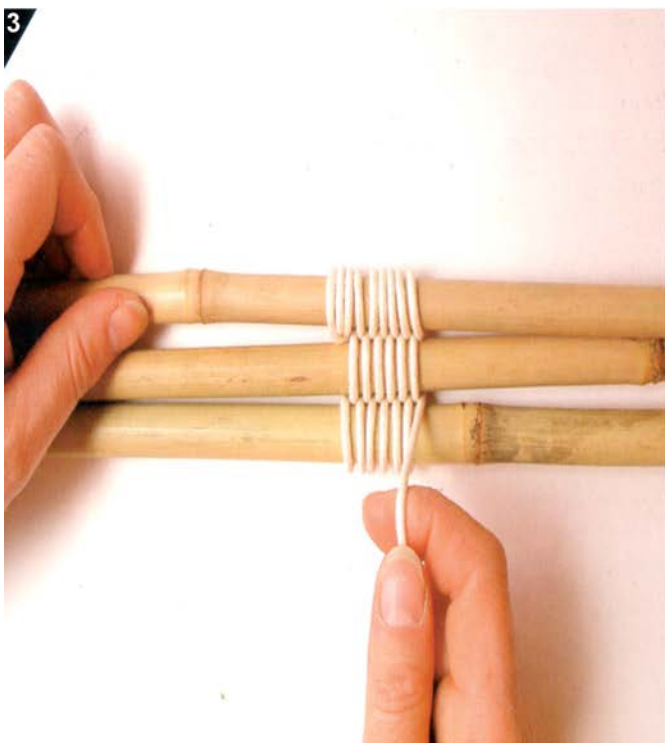
STEP ONE. MAKE A CLOVE HITCH AROUND ONE OF THE OUTSIDE POLES. BRING THE ROPE UNDER AND OVER THE OTHER POLES.



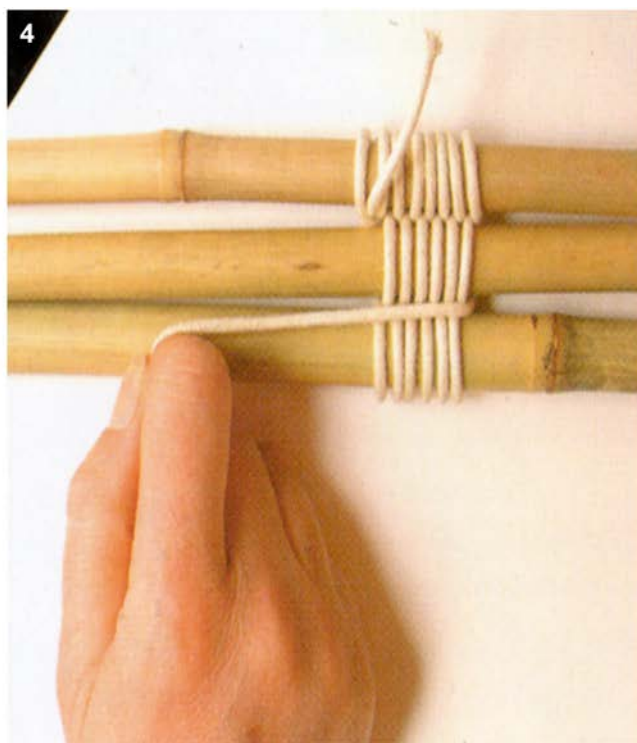
STEP TWO. GO AROUND THE POLE FURTHEST AWAY FROM THE START AND WEAVE THE ROPE BACK OVER AND UNDER.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 187-188)

Figure 12-5-5 (Sheet 1 of 4) Figure-of-Eight Lashing



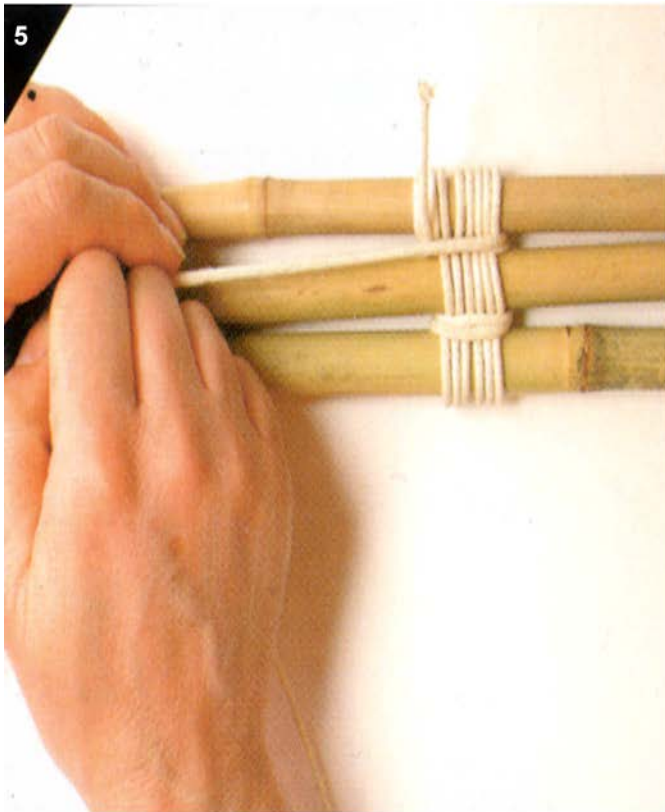
STEP THREE. CONTINUE TO WEAVE THE ROPE UNDER AND OVER EIGHT TIMES. BRING THE ROPE UP IN BETWEEN ANY TWO POLES.



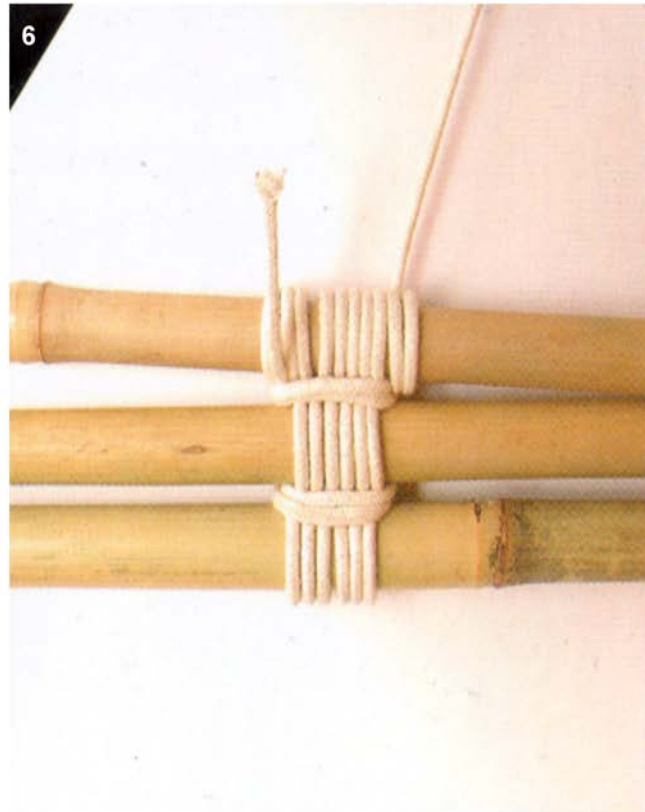
STEP FOUR. PULL THE ROPE PARALLEL TO THE POLES AND PUT IN TWO FRAPPING TURNS.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 187–188)

Figure 12-5-5 (Sheet 2 of 4) Figure-of-Eight Lashing



STEP FIVE. MAKE THREE FRAPPING TURNS IN BETWEEN THE REMAINING POLES.



STEP SIX. MAKE A CLOVE HITCH AROUND THE POLE THAT ALREADY HAS A CLOVE HITCH (FROM THE BEGINNING) AT THE OPPOSITE END.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 187-188)

Figure 12-5-5 (Sheet 3 of 4) Figure-of-Eight Lashing



STEP SEVEN. OPEN THE POLES.

D. Pawson, Pocket Guide to Knots & Splices, Chartwell Books, Inc. (p. 187–188)

Figure 12-5-5 (Sheet 4 of 4) Figure-of-Eight Lashing

CONFIRMATION OF TEACHING POINT 1

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

Teaching Point 2

Have the Cadets Construct Two Field Amenities

Time: 130 min

Method: Practical Activity

FIELD AMENITIES

Field amenities will be chosen from the following:

- a swamp bed,
- a pack frame,
- a meat-drying rack,
- a raft, and
- a tool rack.

ACTIVITY

OBJECTIVE

The objective of this activity is to construct field amenities for a bivouac site, using the knots and lashings previously taught.

RESOURCES

- nylon rope,
- twine,
- utility cord,
- natural resources, found in the field,
- 1.8-kg (4-lb) axe with a .91-m (36-inch handle),
- .60-m (24-inch) bow saw, and
- diagrams detailing field amenities.

ACTIVITY LAYOUT

N/A.

ACTIVITY INSTRUCTIONS

1. Divide cadets into groups of no more than four.
2. Depending on need and availability of resources, have the cadets choose two field amenities to construct.
3. Distribute instructions located at Annex B. Have the cadets select and use the most effective knots and lashings to make their field amenity.
4. When amenities are completed, view all constructed amenities.
5. Additional resources for field amenities are listed in the Instructions.
6. Depending on local regulations, have the cadets redistribute all material used in the construction.

SAFETY

- Ensure cadets are employing safe tool use at all times.
- The wood chosen for the field amenities must be strong enough to hold 50 kg of weight.
- Established boundaries shall be respected at all times.

CONFIRMATION OF TEACHING POINT 2

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

END OF LESSON CONFIRMATION

The cadets' participation in the construction of field amenities in TP 2 will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Field amenities will enhance any base camp. They are relatively easy to construct and are a fun way to reinforce usage of knots. They can make cadets comfortable in the field when it is a home away from home.

INSTRUCTOR NOTES/REMARKS

Natural resources found in the field such as fallen or dead wood, are to be used for construction.

Instructors are to confirm with local authorities that natural resources may be used for this activity.

Each cadet must gather three sticks or poles approximately 2.54 cm (one inch) in diameter prior to this lesson.

Field amenities will be disassembled, following construction.

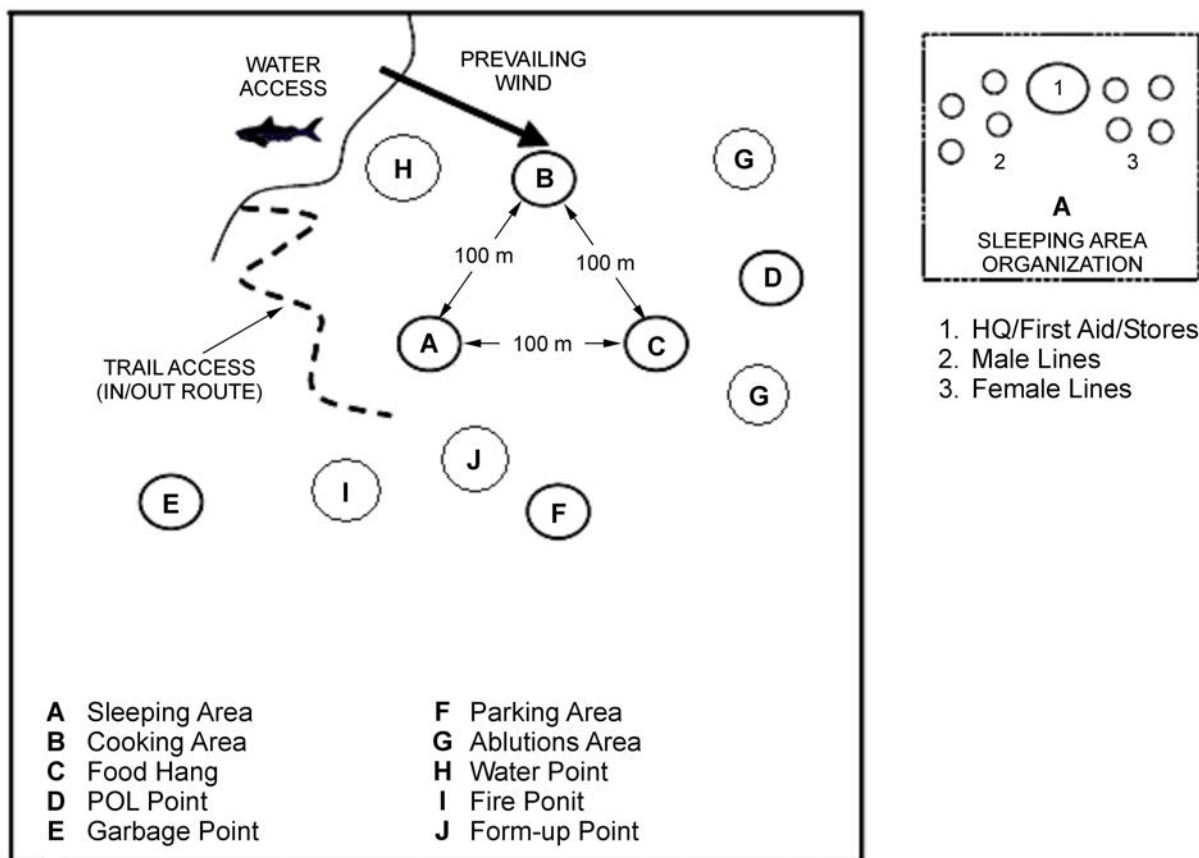
The content of this EO is similar to content in C221.02 (Construct Field Amenities, A-CR-CCP-702/PF-001, Chapter 10, Section 11) and C121.01 (Construct Field Amenities, A-CR-CCP-701/PF-001, Chapter 10, Section 10). It is recommended that these lessons be conducted concurrently.

REFERENCES

- C2-007 (ISBN 0-7858-1446-9) Pawson, D. (2001). *Pocket Guide to Knots and Splices*. Edison, NJ: Chartwell Books Inc.
- C2-008 (ISBN 0-00-265314-7) Wiseman, J. (1999). *The SAS Survival Handbook*. Hammersmith, London: HarperCollins Publishers.
- C2-046 PioneeringProjects.org. (2004). *PioneeringProjects.org*. Retrieved February 20, 2008, from <http://www.pioneeringprojects.org/projects/index.htm>.

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SAMPLE BIVOUAC SITE DIAGRAM HANDOUT



Director Cadets 3, 2007, Ottawa ON: Department of National Defence

Figure 12A-1 Sample Bivouac Site



Areas that will be used after dark should be lit using Glow Sticks, lanterns or flashlights.

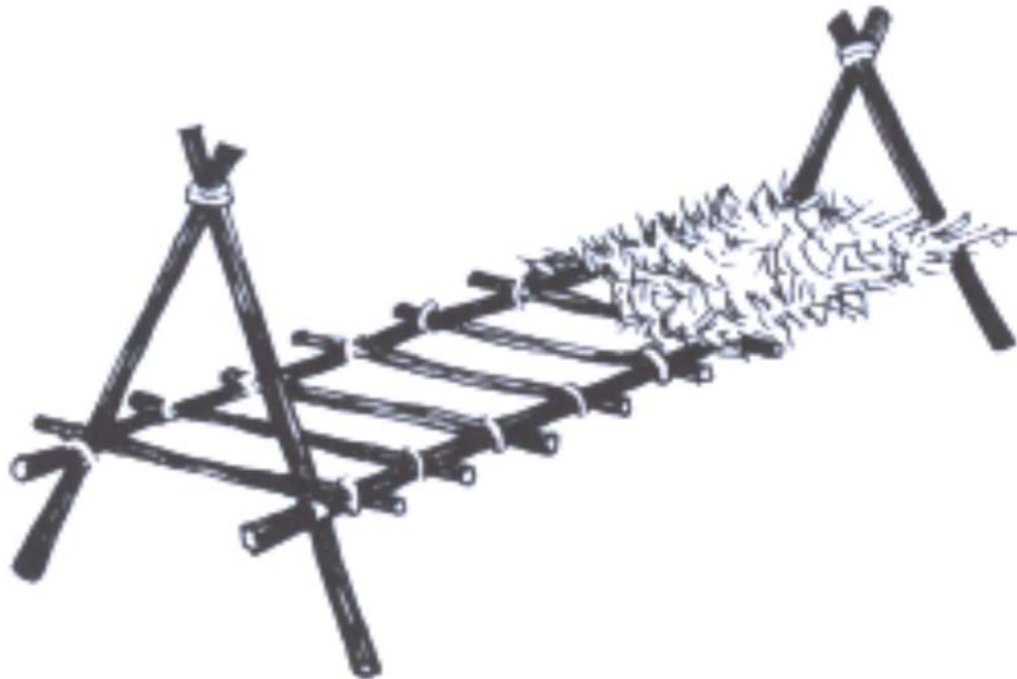
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FIELD AMENITIES

SWAMP BED

Using natural resources and cord, a ladder bed can be constructed. Steps to constructing a ladder bed are:

1. Collect natural resources, to include:
 - (a) four poles 75–100 cm long to construct the A-frames,
 - (b) two sturdy poles approximately 180 cm long to make the frame. Length will depend on the height of the person, and
 - (c) several cross pieces 50–60 cm long, the more flexible the better; number will depend on the size of the person.
2. Construct two A-frame supports using round lashings.
3. Attach the two frame poles to the A-frames, ensuring that the knots and wood are strong and will hold the weight of the individual.
4. Tie the cross pieces making a ladder along the frame.
5. Lay a bedding of boughs, leaves or moss, as desired. Ensure there is enough material to prevent heat being transferred away from the body during the night.



J. Wiseman, The SAS Survival Handbook, HarperCollins Publishers (p. 309)

Figure 12B-1 Swamp Bed

PACK FRAME

Using natural resources, cord and two straps, a pack frame can be constructed. Steps to constructing a pack frame:

1. Collect natural resources, including:
 - (a) two poles to make the frame 75–100 cm long, (length will depend on the height of the person),
 - (b) several cross pieces 50–60 cm long, (length and number will depend on the size of the person), and
 - (c) five pieces (two 15–20 cm long , two 50 cm long and one 50–60 cm long) to construct the right angle projection at the bottom.
2. Construct the ladder frame to the size of the individual.
3. Construct the right angle projection at the bottom and ensure the knots and wood are strong and will not break with a load.
4. Attach straps made from cord or from improvisation and adjust it to a comfortable position.



J. Wiseman, The SAS Survival Handbook, HarperCollins Publishers (p. 372)

Figure 12B-2 Pack Frame

MEAT-DRYING RACK



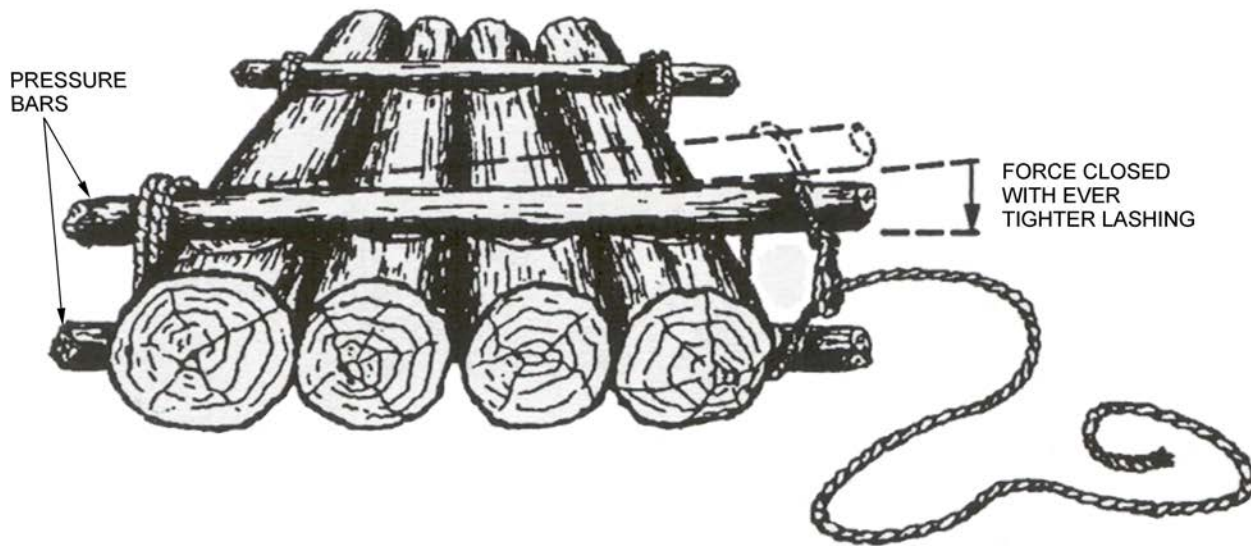
J. Wiseman, The SAS Survival Handbook, HarperCollins Publishers (p. 372)

Figure 12B-3 Meat-Drying Rack

Using natural materials and cord a meat-drying rack can be constructed (as illustrated in Figure 12B-3).

1. Collect natural resources, to include:
 - (a) three poles approximately 3 m long,
 - (b) three poles approximately 2 m long,
 - (c) two poles approximately 1.5 m long, and
 - (d) fourteen poles approximately 0.5 m long.
2. Construct a figure-of-eight lashing around the three long pieces of wood, to make a tripod.
3. Construct the drying rack, using square lashings.
4. Attach the drying rack portion to the long poles, using square lashings.

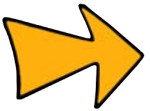
RAFT



The Department of the Army, U.S. Army Survival Handbook, The Lyons Press (p. 278)

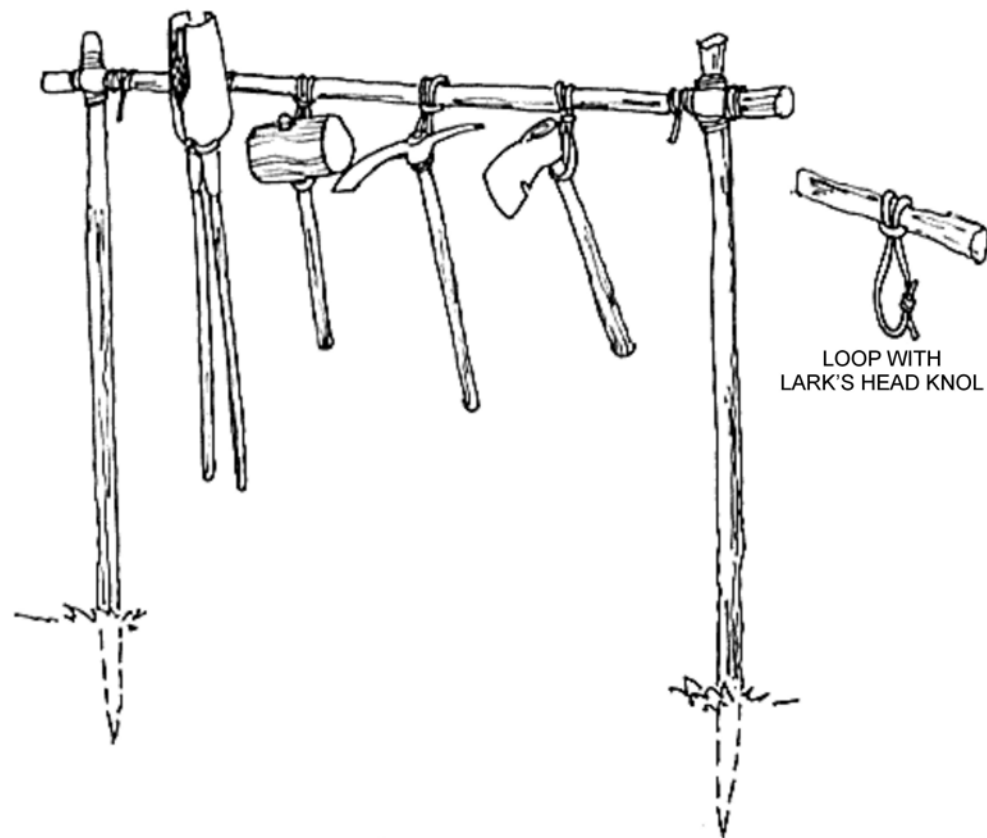
Figure 12B-4 Raft

1. Find a large area.
2. Obtain the following resources:
 - (a) three to six 3 m (9.84 feet) dry logs,
 - (b) two smaller logs 1.5 m (7–8 feet), and
 - (c) large quantity of twine.
3. Begin by placing three to five logs parallel to each other.
4. Lash the logs together using a figure-of-eight lashing.
5. Place smaller logs at each end of the logs perpendicular to the logs. Lash the pressure bars to the raft body.



Dry, dead, standing trees are the best logs for making rafts.

TOOL RACK



*Pioneering Projects.org by A. Miller, 2004, Projects, Copyright 2001 from PioneeringProjects.org.
Retrieved March 5, 2008, from <http://www.pioneeringprojects.org/projects/index.htm>*

Figure 12B-5 Tool Rack

A tool rack will keep tools off of the ground and prevent them from rusting or becoming dull too quickly. By having tools kept in one place they are less likely to go missing and site safety is increased.

Using natural resources and cord, a tool rack can be constructed. Steps to constructing a tool rack:

1. Collect the three poles 180 cm (5.9 feet) long from natural resources.
2. Start by driving two uprights into the ground or use two trees.
3. Lash a ridge pole between the two uprights to hang the tools from.
4. Tie pieces of cord into a loop using a reef knot and then loop it over the ridge pole (as illustrated in Figure 12B-5).

Another example (as illustrated in Figure 12B-6) has two crosspieces of wood for increased stability.



Scoutmaster, Knots and Pioneering, Copyright 2007 by Amazon.com, Inc. Retrieved November 18, 2007, from http://scoutmaster.typepad.com/.shared/image.html?/photos/uncategorized/chip5_copy_copy.jpg

Figure 12B-6 Tool Rack 2