ROYAL CANADIAN ARMY CADETS

RED STAR

INSTRUCTIONAL GUIDE

SECTION 3

EO M223.03 – PARTICIPATE IN A DISCUSSION ON CROSSING OBSTACLES WHILE TREKKING

Total Time: 60 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in Chapter 4 of the QSP. 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 safe techniques to cross natural obstacles, to give direction on procedures and to illustrate the application of the concepts.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall be expected to know how to cross obstacles while trekking.

IMPORTANCE

It is important for cadets to know how to cross obstacles while trekking as Red Star training introduces Class 2 hiking terrain and longer treks. It will help the cadets be prepared and meet the physical challenges of an expedition.

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Teaching point 1 **Discuss Trekking Poles and Walking Sticks**

Time: 15 min Method: Interactive Lecture

TYPES OF POLES AND STICKS

There are three types of trekking poles – ski poles, wooden walking sticks and telescoping trekking poles. Depending on the activity, the choice of pole will be different.

Trekking poles provide better balance and reduce the amount of stress on the knees, shoulders and back. They absorb some of the impact the body would otherwise absorb. The poles, rather than the body, absorb shock, reduce arm and leg fatigue and improve endurance.

Ski poles and walking sticks may be used for long walks and easy treks on fairly level surfaces. The walking stick may be an acceptable choice for moderate treks. Telescoping trekking poles are the most versatile choice. They work well for hiking and trekking on rough terrain.



Black Diamond, 2005, Gear, Copyright 2006 by Black Diamond Equipment Ltd. Retrieved 12 April 2007, from http://www.bdel.com/gear/fixed_length_ski.php

Figure 1 Ski Pole



Wintergoodies.com, 2007, Hiking, Trekking & Walking Pole Adjustable, Copyright 2007 by Wintergoodies.com. Retrieved 12 April 2007, from http://www.winterbrookgoodies.com/pd_swissgear_hiking_trekking_walking_pole.cfm

Figure 2 Telescoping Trekking Pole

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The Walking Stick, 2005, Hiking Poles & Walking Sticks & Staffs, Copyright 2005 by The Walking Stick. Retrieved 12 April 2007, from http://www.backpacking.net/walkstik.html

Figure 3 Wooden Walking Stick

Some people like to have one hand free and only use one pole. For a greater level of support, two is better.

A solid wooden walking stick can be picked up in nature at any time during an expedition.

CRITERIA FOR CHOOSING POLES

To find the right trekking poles or walking stick, one should think about the type of activities for which they will be used, the type of terrain and the weight one will carry.

Aluminum telescoping poles are the best option. They are affordable and will last longer.

Telescopic Adjustment. Poles with telescopic adjustment may be adjusted to be longer or shorter depending on the type of terrain. Multiple people can use the same set of poles by adjusting the length. The poles are easy to store when not in use.

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Verify against the official publication.



Alibaba.com, 2007, Trekking Poles, Copyright 2007 by Alibaba.com Corporation and Licensors. Retrieved 17 April 2007, from http://aoqida.en.alibaba.com/product/50252655/51316862/Trekking_Poles/Trekking_Pole.html

Figure 4 Telescoping Pole

Grips. Grips that have been shaped to fit the hand are more comfortable to grasp and easier to use over a long period of time. Grips that are hard can get wet with sweat and be uncomfortable to hold. One should try multiple models to find the one that fits the hand the best. An adjustable strap should be attached to the grip to prevent dropping the pole.



Moontrail, Backcountry Equipment Ltd, 2006, MSR Denali II, Telescoping Trekking poles, Copyright 2006 by Backcountry Equipment, Ltd. Retrieved 17 April 2007, from http://moontrail.com/msr-denali2.php

Figure 5 Grip With Strap

Anti-shock System (shock absorption). The anti-shock system is built into the pole. Some systems are very complex and offer a range of settings depending on the user's preferences and the conditions of the trek. The anti-shock system helps absorb the impact of the pole striking the ground as one walks, easing the strain on the shoulders and arms. A lock system is a must as it allows the user to ensure the settings are locked and will not change during the hike.

Baskets. Baskets are the round rings at the bottom of trekking poles. The basket stops the poles from sinking into the surface (snow, mud or waterlogged ground). There are a variety of baskets. Baskets that are cut out like snowflakes are best used in the snow. Large, solid baskets are best used on soft muddy ground as they prevent sinking. If one is planning to buy trekking poles with baskets, ensure the baskets can easily be changed.

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Backcountry Edge, 2004, LEKI Snowflake Baskets, Copyright 2004 by Backcountry Edge, Inc. Retrieved 17 April 2007, from http://www.backcountryedge.com/products/leki/snowflake_baskets.aspx

Figure 6 Snowflake Baskets



Backcountrygear.com, 2007, Black Diamond Trekking Pole Spare Baskets. Retrieved 17 April 2007, from http://www.backcountrygear.com/catalog/accessdetail.cfm/BD320

Figure 7 Solid Baskets

Tips. There are three types of tips – single point, chiselled and rubber tipped. Each of these tips will work well in a certain environment. The best overall tip is the chiselled. It looks like notches have been cut out of the very tip of the pole, leaving several points sticking out. This type of tip offers traction in almost any condition and is durable.

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GoSki-Real Resort Info, 2005, Poles and Trekking Poles, Copyright 2005 by RSN. Retrieved 17 April 2007, from http://www.goski.com/gear/product/LifeLink_Replaceable_Flex_Tip_Pair.html

Figure 8 Replaceable Tips

USING TREKKING POLES

Using trekking poles may help prevent aches and pains. Poles are useful to help stabilize heavy loads and to negotiate trails. Besides providing better balance, trekking poles reduce the amount of stress on the back, legs and especially the knees. The poles absorb some of the impact the body would have to endure.



As an explanation is given, demonstrate the different techniques for holding trekking poles.

Trekking Uphill. For walking on even terrain, arms should be parallel to the ground when holding the grip. When trekking uphill, shorten the trekking poles for comfort and stability. It allows one to gain more power.

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Verify against the official publication.



TrekkingPoles.com, 2006, How to Use Trekking Poles, Copyright 2006 by NicheRetail, LLC Company. Retrieved 26 April 2007, from http://www.trekkingpoles.com/custserv/custserv.jsp?pageName=How_To_Use

Figure 9 Trekking Uphill

Trekking Downhill. Trekking poles will help reduce the shock of each footfall on the joints when going downhill.



TrekkingPoles.com, 2006, How to Use Trekking Poles, Copyright 2006 by NicheRetail, LLC Company. Retrieved 26 April 2007, from http://www.trekkingpoles.com/custserv/custserv.jsp?pageName=How_To_Use

Figure 10 Trekking Downhill

The following may help while descending on rocky terrain:

- Walk slowly and test each rock before placing body weight on it.
- On even ground, lean forward to place bodyweight on the trekking poles.
- Grip the trekking pole securely.
- Keep the arms bent at 90 degrees.
- When possible, move one pole forward and step through with the opposite leg.

When trekking downhill, lengthen the trekking poles for comfort and stability.

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Trekking poles can also be used to:

- probe the depth of puddles or the strength of snow bridges;
- ward off aggressive animals; and
- provide support for a camera.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

Q1. Name three types of trekking poles.

Q2. Name three criteria to consider when selecting trekking poles.

Q3. What are the advantages of using trekking poles?

ANTICIPATED ANSWERS

A1. Three types of trekking poles are ski poles, wooden walking sticks and telescoping trekking poles.

A2. The criteria to consider when selecting trekking poles are telescopic adjustment, grips, anti-shock system, baskets and tips.

A3. Trekking poles may help prevent aches and pains. Poles are useful to help stabilize heavy loads and to negotiate trails. Besides providing better balance, poles reduce the amount of stress on the back, legs and especially the knees. The poles absorb some of the impact the body would have to endure.

Teaching point 2 **Explain Scrambling**

Time: 5 min Method: Interactive Lecture

Scrambling is a term used to describe making one's way over rough, uneven terrain and rocks by climbing or crawling. Scrambling usually requires the use of both hands and feet.

The following should be considered when using the scrambling technique:

- Test handholds and footholds before committing bodyweight.
- Keep the lower body close to the rocks.
- Use the hands to help maintain balance.
- Use large muscles in the legs to support body weight.
- Always maintain three points of contact with the rocks.

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Talisman Newsletter, 2006, Merry Christmas, Copyright 2007 by Talisman Mountaineering Activities Scotland. Retrieved 17 April 2007, from http://www.talisman-activities.co.uk/downloads/newsletters/newsletter4/newsletter4.htm

Figure 11 Scrambling Technique

When scrambling and facing difficulty, take a moment to catch your breath. Study your route options and always identify a way to turn back.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS

Q1. What is scrambling?

Q2. Which muscles should be used to support body weight?

Q3. How many points of contact should be kept with the rocks when scrambling?

ANTICIPATED ANSWERS

A1. Scrambling is a term use to describe making one's way over rough, uneven terrain and rocks by climbing or crawling. Scrambling usually requires the use of both hands and feet.

A2. The leg muscles should support body weight.

A3. Three points of contact should be kept with the rocks when scrabling.

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Teaching point 3 **Explain Boulder Hopping**

Time: 5 min Method: Interactive Lecture

Boulder hopping is when one uses speed and momentum to lightly hop from boulder to boulder using arms or trekking poles to stay balanced.

The following should be considered when boulder hopping:

- Plan your route. Larger boulders are more stable.
- Use your hands for stability.
- Keep your knees bent and relaxed.
- Control speed. Lightly hop.
- If one begins to lose balance, move forward, stepping lightly from foot to foot until balance is regained.



Great Outdoor, 2006, Hiking the Forgotten End of the AT, Copyright 2006 by Greatoutdoor.com. Retrieved 12 April 2007, from http://www.greatoutdoors.com/go/photos.jsp?title=hikingtheforgottenendoftheat&imag=1

Figure 12 Boulder Hopping With Trekking Poles

If one wants to practice the boulder hopping technique, medium sized rocks are the best. Practice without a backpack. If one needs to carry a backpack, it should be as small as possible.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS

Q1. What are the two elements used when boulder hopping?

Q2. Describe boulder hopping.

Q3. What should you do when you lose your balance?

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ANTICIPATED ANSWERS

A1. When boulder hopping one uses speed and momentum.

A2. Boulder hopping is when one lightly hops from boulder to boulder using arms or trekking poles to stay balanced.

A3. If one begins to lose balance, move forward, stepping lightly from foot to foot until one regains balance.

Teaching point 4 **Explain Methods for Crossing a Scree**

Time: 15 min Method: Interactive Lecture

A scree is a mass of fine, small rocks that are often found above the tree line on mountain slopes. When dealing with a scree, caution is the first rule.



East Riding of Yorkshire Council, E Riding media library-England North, Copyright 2007 by School Improvement Service, East Riding of Yorkshire Council. Retrieved 17 April 2007,from http://www.eriding.net/media/england_north.shtml

Figure 13 Scree

Moving on a scree should be avoided, if possible.

TRAVERSING A SCREE

Traversing means walking obliquely or crossing in a sideways movement.

Walking on a scree may be very slippery. When traversing a scree, a planned zig-zag path is the best option. The planned route should be broken down in small sections. One should keep the pace controlled and remember that speed can only mean greater risk.

Walking Sideways. Walking sideways will provide more contact between the long side of the foot and the slope to give better stability.

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CLIMBING ON A SCREE

One should avoid climbing up a scree, if possible as it can be very exhausting. If there is no other option, the following tips should be considered:

- Keep to the sides of the scree. The movement of the scree is slower and larger boulders can be found there.
- Aim to keep your feet horizontal. If the scree is small enough, kick the toes into the slope (like in snow).
- Climbing with the feet spread-eagled will help put weight on the instep of each boot.
- Take small steps to reduce the strain on the legs. This also reduces the chances of slipping.
- Legs should be bent at the knee to support the body.

DESCENDING ON A SCREE

When descending a scree, one should keep the weight on the heels and take short steps. One's back should be straight and the knees should be slightly bent to absorb stress and improve balance.

The following should be considered when descending a scree:

- Dig the heels into the slope.
- Use the hands to stay steady.
- Relax the knees and keep moving.

CONFIRMATION OF TEACHING POINT 4

QUESTIONS

Q1. What is a scree?

Q2. What does climbing with the feet spread-eagled help with?

Q3. What actions can help make a scree descent safer?

ANTICIPATED ANSWERS

A1. A scree is a mass of fine, small rocks that are often found above the tree line on mountain slopes.

A2. Climbing with the feet spread-eagled will help put weight on the instep of each boot.

A3. The following actions can make the descent safer: dig the heels into the slope, use the hands to stay steady and relax the knees and keep moving.

Teaching point 5 **Explain Crossing Water Obstacles**

Time: 10 min Method: Interactive Lecture

CROSSING RIVERS

Crossing rivers can be very challenging depending on the time of the year (e.g. spring when snow melts into streams and rivers). A plan should be established before crossing a river.

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Choose a Place to Cross. The safest place to cross is where the water is calm and no deeper than the height of one's hips. Such conditions can be found around rivers bends, where the stream widens and slows to make the turn. The darker (and greener) the water, the deeper it is.

The following should be avoided:

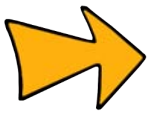
- turbulence that causes white water;
- dark water; and
- a powerful current.

Best Time to Cross. Early in the morning is the best time to cross. Rivers run slower in the morning because the water is colder at night. If conditions appear dangerous, walk upstream in search of a safer option. Always cross with caution.

Wading Across a River. Wading across a river is the safest option. When crossing, always face upstream, diagonal to the current.

If crossing in a group, the strongest people should be at the end and link arms. The group should move slowly in a line, diagonal to the current.

Trekking poles can be used to wade across a river. They will help with maintaining balance.



When crossing a river, to keep boots dry, take them off and wear sport sandals. If one does not have sport sandals, remove socks and boot liners, put boots back on and cross the river.

Hopping. Hopping is a technique used with rocks and will help one cross a river and stay dry. The following should be considered when hopping:

1. Plan the route. Evaluate the steps to take.
2. Decide which rocks are stable.
3. Test steps before committing.
4. If a step is unstable, move quickly to the next one.

Stepping in the water is an option. It is better to step into the water and get wet feet than to fall into it.

Crossing Rivers Using a Wooden Bridge or Ropes. Wooden bridges range from constructed bridges to logs placed across a stream. Always test a bridge first to see if it is fixed and to assess its stability. Crossing a log should be done one person at a time since a little weight can dislodge the log. If a bridge or a log is too narrow, unstable or high, shuffle across in a sitting position.



Unless trained in river rescue, hand-held rope should not be used. If a rope is fixed in place, it can be used to hold on to. Avoid getting tangled in the rope. Carabiners shall not be used to attach a person to the rope.

WATERLOGGED GROUND

Avoid crossing waterlogged ground if possible. It can be a very unpleasant experience.

If there is no other way around, one should plan a route through it. Footsteps of previous trekkers can tell how deep and hard the soil is.

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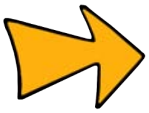
Natural Hard Spots. When planning a route, aiming for hard spots in the ground can save some time. Trees and shrubs might indicate a solid piece of ground. Large rocks and clumps of hard grass are also good indicators.Trails. Sometimes, trails may go across waterlogged ground. Frequently used trails will often have small wooden pathways (looking like short bridges) built to help facilitate the crossing. Bridges made of fallen logs may also be used.

Trails. Sometimes, trails may go across waterlogged ground. Frequently used trails will often have small wooden pathways (looking like short bridges) built to help facilitate the crossing. Bridges made of fallen logs may also be used.

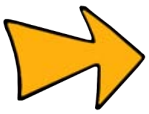


When crossing waterlogged grounds, boots should be tightly laced. Suction of mud may pull at the boots.

CROSSING ICE AND SNOW

Reading the Snow for a Safe Route. When planning a route, it is best to avoid rocky places. Rocks absorb heat causing the snow near them to melt faster. The soft snow around may not be firm enough to hold someone's weight. Before using a path, test the snow with trekking poles to prevent injuries. It is best to cross a large snowfield early in the morning when the snow is harder. As the sun goes up and becomes more powerful, snow melts unevenly and creates soft spots.

Ascending on Snow. When walking on snow, the conditions will govern the route. A new route may be created to ascend safely. Zig-zags may also be an option. If it is easier to go straight up, one should kick the snow several times to make solid steps to stand on. Before standing on these steps, one should always test body weight.



Trekking uphill through snow can be very exhausting. It is recommended to plan twice as much time to complete this kind of trek. Take breaks as required.

Crossing Frozen Water. Crossing frozen water requires caution. When crossing ice, one should use trekking poles to probe for holes or test the snow. On frozen water, do not necessarily rely on old footsteps. The route may not be safe if they are a few days old. Always test before advancing.



Ice is thinner in early winter and spring. During these seasons, one should try to go around any frozen water.

CONFIRMATION OF TEACHING POINT 5

QUESTIONS

Q1. When crossing water, what type of water should be avoided?

Q2. How can someone cross a bridge or a log when it is too narrow, unstable or high?

Q3. When planning a route covered in snow, why is it safer to avoid rocky places?

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ANTICIPATED ANSWERS

A1. When crossing water, turbulence that causes white water, dark water, and a powerful current should be avoided.

A2. A person can cross a bridge using a sitting position and shuffling across.

A3. Rocks absorb heat causing the snow near them to melt faster. The soft snow around them may not be firm enough to hold one's weight.

END OF LESSON CONFIRMATION

QUESTIONS

Q1. Name three criteria to consider when selecting trekking poles.

Q2. What is scrambling?

Q3. When is the best time to cross a river?

ANTICIPATED ANSWERS

A1. The criteria to consider when selecting trekking poles are telescopic adjustment, grips, anti-shock system, baskets and tips.

A2. Scrambling is a term used to describe making one's way over rough, uneven terrain and rocks by climbing or crawling. Scrambling usually requires the use of both hands and feet.

A3. The best time to cross a river is early in the morning. Rivers run slower in the morning because the water is colder at night.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Knowing how to cross obstacles is a brief introduction to the world of trekking. It is also a good opportunity for the cadets to be challenged and to develop trekking skills. Crossing obstacles is the first step toward fun and challenging expeditions.

INSTRUCTOR NOTES/REMARKS

The cadets shall participate in a confirmation activity for this EO during the Navigation/Trekking FTX.

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