ROYAL CANADIAN ARMY CADETS

GOLD STAR

INSTRUCTIONAL GUIDE

SECTION 4

EO M426.02C – HIKE ALONG A ROUTE

Total Time: 270 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-704/PG-001, *Gold Star Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

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

Every cadet must have a water carrier prior to the start of this lesson.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

The experiential approach was chosen for this activity as it allows the cadet to acquire new knowledge and skills through a direct experience. The cadet experiences hiking on Class 3 terrain during an expedition and defines that experience on a personal level. The cadet will be given the opportunity to reflect on and examine what they saw, felt and thought while hiking and consider how it relates to what they already learned and experienced as well as how it will relate to future experiences.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have hiked 10–15 km along a route with some Class 3 terrain , during an expedition.

IMPORTANCE

It is important for cadets to be able to hike along a route that contains Class 3 terrain so they will be prepared for the technical challenges if / when given the opportunity to participate in more advanced level expeditions. Hiking is not just about walking along a trail or predetermined route; it requires the individual to be aware of their surroundings, their limitations and the limitations of the group they are travelling with. Knowing what to

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do when an obstacle is on the route is critical for everyone's safety. As well, having a basic knowledge and understanding of techniques such as the "rest step" will make the hike more enjoyable for all members.

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Teaching point 1 **Participate in hiking familiarization.**

Time: 270 min Method: Experiential

BACKGROUND KNOWLEDGE



The TP for this lesson will be presented during hiking familiarization training. Some material may be presented prior to departure, with the remainder being incorporated into teachable moments and breaks throughout the route. Cadets will have been introduced to many of the theoretical concepts; this activity will provide them the opportunity to put into practice what they have already learned.

THE DIFFERENCE BETWEEN HIKING, TREKKING AND BACKPACKING

Hiking is an activity of vigorous walking in the outdoors / wilderness on an unpaved trail, either on a path or navigating along an unmarked route. Usually day hikes consist of travelling cross-country over different terrains, sometimes with inclines and declines. It provides individuals the opportunity to travel to destinations that could not, in many cases, be seen any other way.

The aim of hiking is to learn skills beneficial to physical health. It offers an alternative learning environment and allows participants to explore the outdoor surroundings. For individuals who have never participated in hiking activities, it can be quite challenging. However, it can also offer a challenge to experienced hikers by varying the location / terrain of the hikes.

Trekking is a journey over long distances over several challenging days. Usually trekking involves terrain that requires crossing obstacles.

Hiking becomes backpacking when equipment is carried for an overnight stay.

PERSONAL CLOTHING AND EQUIPMENT FOR HIKING

Clothing

Clothing for the outdoors is slightly different than everyday clothing, yet everyone has clothing at home they can wear outside. When choosing clothing for outdoors, consider clothing that:

- is in good repair,
- breathes: perspiration must be able to escape the body and evaporate (depending on exertion, the body will warm up and become damp, even sweaty),
- is appropriate for the weather conditions and the activity,
- is made of materials that dry easily,
- offers wind and rain protection resistance,
- insulated and padded,
- flexible without drag,
- can be layered as necessary, and
- is comfortable.

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Footwear

The most important factor to consider when selecting hiking footwear is fit. The footwear should be sufficiently sturdy to hold together throughout a trip. It should provide protection for the feet, and a firm foundation for walking and scrambling. Today, boots are derived from athletic shoe technology. They are light, comfortable and functional. Common characteristics to look for when selecting a hiking boot are:

Sturdy. The boot should support feet and ankles from twisting on uneven surfaces. Higher boots with stiff ankle support provide lateral rigidity. The boot should also support the foot from overextending when placing too much weight on the toe or heel.

Lightweight. The lighter the boots the easier walking will be. Every extra pound of footwear weight can be compared to five pounds of added backpack weight.

Comfortable fit. When worn, boots shall fit snugly with the heel snug against the wall of the shoe and a small amount of space for the toes to move.

Correct size. Proper fitting boots ensure comfort during hiking. A boot fits correctly when:

- it is wide enough so the boot matches the width of the foot with little extra room,
- the tongue rests comfortably along the top of the toe, and
- the toes have room to wiggle.

Socks

The boot is only part of the footwear system; socks are the first line of defence for the feet. A two-sock system is common in many activities. Unless hiking regularly in hot, damp conditions, consider wearing one pair of heavy socks and one pair of light, inner socks. Always ensure socks are properly sized for the foot.

Inner socks. This is a thin layer that helps wick, or pull moisture away, from the foot. They are usually made of a polypropylene material.

Outer socks. This layer is most often made of wool or a wool blend, which can absorb moisture. This layer cushions the foot and provides insulation.

Pack

There are many devices made to assist in carrying loads on a hike. For day trips, use a small pack which can comfortably hold all required items. In the winter, there may be a requirement for extra capacity.

Fanny pack. The pack for short hikes or treks up to a few hours is a fanny pack. This pack is a small, unobtrusive pack that sits atop the buttocks, with a thin belt that clips around the waist. These are also known as waist, or lumbar, packs. The simplest of these packs consists of a pouch sewn to a piece of flat webbing. More elaborate fanny packs can hold upwards of 10 L, and have padded belts and suspensions. The fanny pack is lightweight, and holds the load close to the spine and a person’s centre of balance. Items carried in a fanny pack should be limited to 4.5 kg (10 lbs).

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Note. From ABC-of-Hiking, 2007, Shop Backpacks, Copyright 2007 by Max Lifestyle.net "Go Hiking Like Max". Retrieved April 19, 2007, from http://www.abc-of-hiking/shopitems/backpacks/prowler5-backpacks.asp

Figure 1 Fanny Pack

Day pack. Day packs are produced in numerous model types; however, all have shoulder straps and a waist belt. Most day packs have pockets for organizing equipment and basic exterior features (eg, axe loops and daisy chains).

Important qualities of a good day pack include:

- back padding to protect shoulder blades,
- firmly padded shoulder straps,
- adjustment straps for placing weight between shoulders and hips,
- an internal frame (more durable and comfortable to wear),
- padded hip belt; four inches wide around hips and two inches at the buckle, and
- 35–40 L in volume (roughly 9–13 kg [20–30 lbs]).



Note. From ABC-of-Hiking, 2007, Shop Backpacks, Copyright 2007 by Max Lifestyle.net "Go Hiking like Max". Retrieved April 17, 2007, from http://www.abc-of-hiking/shopitems/backpacks/team-backpacks.asp

Figure 2 Day Pack

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Ten Essential Items

Water carrier. One indispensable item in any wilderness traveller's kit is a water carrier. Carrying water during a hike requires a lightweight water bottle with a tight lid that is easily refillable. Versatile equipment benefits the user. When choosing a bottle it is advisable to choose one that can withstand the temperatures of frozen or hot liquids.

Wide mouth bottles are a practical choice as many water filters are built to twist directly onto the opening of the bottle. This simplifies the water filtering process.

Hydration bags are an excellent water carrying device which allows the user to easily carry between 1 L and 4 L of water at a time. They are built into a pack and consist of a lightweight plastic bladder and a drinking tube that passes over the shoulder of the user and allows for easy hydration while hiking.



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

Figure 3 Wide Mouth Water Bottle



Note. From "Bionic Sports", Copyright 2007 by Bionic Sports. Retrieved November 16, 2007, from http://www.bionicsports.com/acatalog/Hydration.html

Figure 4 Hydration Bag

Pocket knife. A knife or multi-purpose tool is essential for repairing equipment and cutting rope, cord or bandages. The key is to find a knife or tool that is small but has all the attachments—blade, scissors,

screwdriver—that may be required while out on a hike.

Extra food. It is always advisable to bring extra food on a hike. Snacks such as granola bars, GORP (good old raisins and peanuts), chocolate bars, and dried fruit will provide the hiker with an energy boost. In an emergency situation they may increase chances of survival.

Extra clothing. Extra clothing includes an additional layer of warm clothing and a rain coat. A light down vest, sweater, or fleece jacket will provide insulation should the weather be cooler than expected, and during breaks

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when sweat evaporates and the body cools. Just because the sun is shining at the start of a hike does not mean it will be shining at the end. Rain coats may also be used in building a shelter in an emergency situation.

Sunscreen. Sunscreen blocks or prevents the skin's exposure to the sun or ultraviolet light. The skin will burn when the amount of exposure to the sun, or ultraviolet light source, exceeds the ability of the body's protective pigment to protect the skin. According to the *Canadian Dermatology Association* a minimum of SPF 15 with UV-A and UV-B protection should be worn.

Sunglasses. Hikers should always wear sunglasses to protect their eyes against damage from the sun's light (eg, ultraviolet, bright or intense light, and blue light). This is especially important in the winter, as snow blindness is a prevalent injury.

Hat. A wide brimmed hat will protect the back of the neck, ears, and face from burning. A toque in the winter will keep the hiker's ears warm and stop the escape of heat from the head.

Insect repellent. Annoying mosquitoes and black flies can have a negative impact on a hike. Wear loose fitting clothing with closed cuffs and apply insect repellent to ward off unwanted insects. The repellent should be applied to the exposed areas of the body. Many insect repellents rely on chemicals such as DEET to repel insects and have long durations per application.

Headlamp. A headlamp is simply a flashlight that has been attached to an adjustable strap that fits around the user's head. It is beneficial on a hike as it frees up the user's hands to complete tasks when light is low or it is dark.



Note. From "Mountain Equipment Coop", Copyright 2007 by Mountain Equipment Coop. Retrieved November 16, 2007, from http://www.mec.ca/Products/product_detail.jsp?PRODUCT%3C%3Eprd_id=845524442621000&FOLDER%3C%3Efolder_id=2534374302697057&bmUID=1195238790425

Figure 5 Headlamp

Survival kit. Having a survival kit is a must during any wilderness hiking trip. It should include water purification tablets, a light source, waterproof matches, a signalling device and first aid materials.

Notebook and pencil. Having a notebook and pencil will allow hikers to keep a log throughout the hike. Collecting information such as route details, trail condition, trail difficulty, and general observations will provide the individual with beneficial material when planning other hikes. It will also provide a record of the experience.

TERRAIN

Terrain is the physical characteristics of the ground, whether it is a flat, straight trail or an ice-peaked mountain. There are different types of terrain that one can expect to encounter on a route.

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IAW with A-CR-CCP-930/AG-001, *Cadet Program Interim Activity Safety Direction*, the CCM uses the Yosemite Decimal System (YDS) to rate trail difficulty levels. YDS has a scale from 1–5 and it rates the hardest / most technical section on a terrain / route. It also provides ratings for travel over flat terrain.

Class 1. Hiking, usually on a trail.

Class 2. Simple scrambling, crossing obstacles with the occasional use of hands, requires route-finding skills, may be backcountry dense bush.

Class 3. Angle is steep enough that hands are required for balance; scrambling on rocks using hands and feet, a rope might be carried.

Class 4. Simple climbing, often with exposure requiring a rope belay. A fall could be serious or fatal. Natural protection can usually be easily found.

Class 5. Technical rock climbing begins. Climbing involves the use of ropes, belays, and the placement of natural or artificial protection for the leader in case of a fall. An open-ended decimal extension to Class 5 exists for rating climbs within this category.

Types of Terrain

Easy terrain. Terrain is flat and footing is secure. Forest roads, trails following streams and rolling hills are generally easy walking.

Moderate terrain. Terrain with a trail that is mostly solid under foot with either one fairly steep hill or a series of small hills or forest floors with light underbrush.

Difficult terrain. Any terrain in which a person ascends or descends over 150 m in 1 km. It can also consist of patches of dense forests, thick vegetation and rocky trails / root covered trails.

Rates of travel will differ, depending on the group, equipment, terrain, elevation above ground, etc. Generally:

- On easy terrain with a pack, a group can be expected to travel 3–5 km / h.
- On difficult terrain with a pack, a group can be expected to travel 1.5–3 km / h.
- In difficult terrain, the rate of travel can drop to a third or even a quarter of what it would be on easy terrain.
- When above 3000 m, the rate of travel will greatly decrease. On average, a person will travel 1 km / h less for every 1000 m gained in elevation.
- When descending on easy terrain, the rate can be up to twice the speed of the ascent.

USING TREKKING POLES WHILE HIKING

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.

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

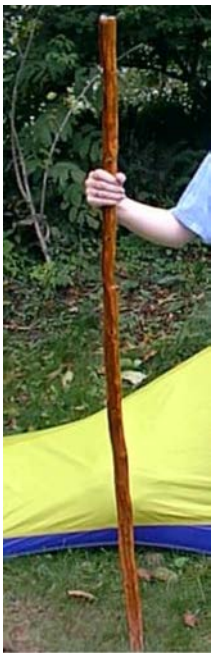
Figure 6 Ski Pole



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

Figure 7 Telescoping Trekking Pole

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

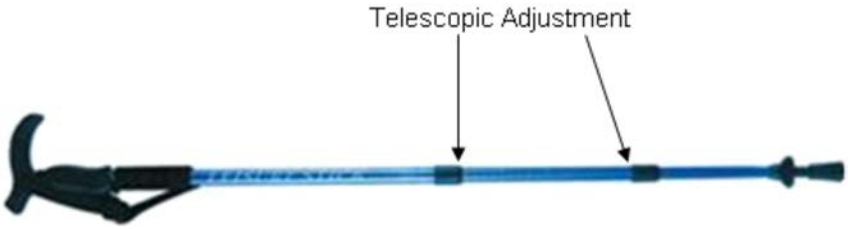
Figure 8 Wooden Walking Stick

Criteria for Choosing Trekking Poles

To find the right trekking poles or walking stick, one needs to consider 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.



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

Figure 9 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

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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.



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

Figure 10 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.



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

Figure 11 Snowflake Baskets

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

Figure 12 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.



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

Figure 13 Replaceable Tips

Methods of Use

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

Trekking uphill. When 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. This allows one to gain more power.

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

Figure 14 Trekking Uphill

Trekking downhill. Trekking poles will help reduce the shock of each footfall on the joints when going downhill. For comfort and stability it is recommended that the poles be lengthened.



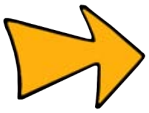
Note. From TrekkingPoles.com, 2006, How to Use Trekking Poles, Copyright 2006 by NicheRetail, LLC Company. Retrieved April 26, 2007, from http://www.trekkingpoles.com/custserv/custserv.jsp?pageName=How_To_Use

Figure 15 Trekking Downhill

The following may help while descending on rocky terrain:

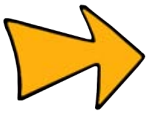
- Walk slowly and test each rock before placing body weight on it.
- Lean forward to place body weight on the trekking poles.
- Grip the trekking pole securely.
- Keep the arms bent at 90 degrees.
- When possible, move one pole forward and step through with the opposite leg.

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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.



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.

PERSONAL HIKING RHYTHM

An average day of hiking will consist of periods of hiking and periods of rest. The combination of a good hiking rhythm, a good hiking speed, and fixed rest intervals separate beginners from experienced hikers. Enthusiasm often tends to cause one to start too fast, get tired quickly, take an early rest, and start off too fast again.

Stride Rhythm and Speed

A steady hiking rhythm is generally more enjoyable as one over exerts themselves less and generally keep the physical strain at comfortable levels. Having a steady rhythm will enable a hiker to stick to a fixed schedule and lessen the strain put on the body. This allows a hiker to travel less fatigued.

Developing a hiking rhythm. A hiking rhythm is very personal and is developed over the course of many hikes. To develop a rhythm there are some guidelines to follow:

- Choose a specific stride rhythm and speed and keep to it. A good rhythm is one that allows a hiker to hike at the same intensity level for at least one hour without having to take a break.
- Adjust rhythm to terrain, weather and weight. The point where a person can no longer carry on a conversation indicates the hiker has gone beyond a comfortable tempo.
- Make the rhythm a full body movement where breathing and swinging of the arms happen in harmony.
- Uneven surfaces like uphill and downhill slopes of varying incline can make it difficult to maintain a steady hiking rhythm.

Controlling Fatigue

The purpose of resting is to slow down the heart rate and breathing, thereby allowing the heart and lungs to rest. Resting gives the body time to get rid of the lactic acids built up in muscles, and to recover from hot spots or sores.

Resting guidelines:

- Rest in regular intervals; try 10 minutes for every hour hiked (make them part of the rhythm).
- Stick to 10-minute rest breaks. Use only lunch and dinner (supper) breaks as extended rest periods.
- 10 minutes is the most effective rest duration for body recovery.
- Ensure to take off backpacks, rest in the shade, and sit down during rests.
- During the extended rest breaks, allow feet to rest and dry by removing shoes, and airing out footwear.

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Adjusting Rhythm

Generally, hiking rhythm on a flat surface can be maintained easily; however, when weather and additional weight are included, hiking becomes more difficult. How fast one travels depends on the fitness level of the entire group, the terrain, the altitude and pack weight. One of the best ways to measure and regulate pace is to pay close attention to the tempo of breathing.

If breathing determines pace then, for example, on level ground one takes three steps per inhalation, and three steps per exhalation. Climbing a hill, while maintaining the same breathing rate, the steps per inhalation fall to two. A good rule of thumb to follow is to walk at a pace where one can still carry on a conversation.

When travelling in different conditions one's pace will change, according to:

- **Weather.** Poor weather will reduce pace and force the hiker to reduce step size for safety.
- **Weight.** Weight will affect pace size as the more weight one carries, the more energy must be expelled.
- **Terrain.** Travelling uphill will reduce pace size and distance travelled.

Full Body Synchronization

Hiking rhythm is a full body affair. Just like marching, hiking requires coordinated movements where every action has a reaction. The swinging of arms provides momentum, breathing controls pace, etc. To properly control rhythm, one must first learn what body parts work in unison. To employ full body synchronization during movement, the arms should be in motion at a natural swing, opposite the forward foot.

Resting Intervals

An average day of hiking consists of periods of hiking and resting. Resting intervals should occur once every hour, for a duration of 10 minutes, in an area that is conveniently shaded and possibly near a water source. During the first five to seven minutes of resting, the body flushes out about 30 percent of the lactic acid buildup in the muscles, but only five percent in the next 15 minutes (be cautious rest does not extend beyond 10 minutes).

In addition to lactic acid buildup in the muscles, the body works in unison and other areas may become fatigued. By resting:

- the heart rate slows and beats at a reduced rate,
- the lungs supply less oxygen to the body,
- the body and mind rest, and
- feet and footwear can be aired out, reducing the chance of blisters.

The Rest Step

When trekking, sometimes a hill is so steep that it simply cannot be climbed without taking breaks. In these cases, the rest step can be used. The rest step is also good when hiking in snow and fog.

To employ the rest step:

1. Begin from an upright position. Step forward with the right leg, keeping the weight on the left (back) leg, with the knee locked. Pause before taking the next step, with the weight still on the back leg.

2. Transfer the weight to the right leg. Push up with the right leg and take a step forward with the left leg. Lock the right knee, so that the right leg is bearing all the body weight. Pause before taking the next step, with the weight still on the back leg.

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3. Transfer the weight to the left leg. Push up with the left leg and take a step forward with the right leg. Pause before taking the next step, with the weight still on the back leg. Continue moving, walking at a slow and steady pace.

CLASS 3 TERRAIN HIKING TECHNIQUES



Step 1 Step 2 Step 3

Note. From Backpacking and Hiking (p. 143), by K. Berger, 2005, New York, NY: DK Publishing Inc. Copyright 2005 by DK Publishing, Inc.

Figure 16 Rest Step

Scrambling

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 body weight.
- 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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Verify against the official publication.



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

Figure 17 Scrambling Technique

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

Boulder Hopping

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

The following should be considered when boulder hopping:

- Plan your route. Larger boulders are more stable.
- Use hands for stability.
- Keep 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.

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Verify against the official publication.



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

Figure 18 Boulder Hopping With Trekking Poles

Scree Crossing

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.



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

Figure 19 Scree

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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 route should be broken down in small sections. One should keep the pace controlled and remember that speed can only mean greater risk of injury.

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

Climbing a Scree

One should avoid climbing 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 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 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.

CROSSING WATER OBSTACLES

Rivers

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

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.

If conditions appear dangerous, walk upstream in search of a safer option. Always cross with caution.

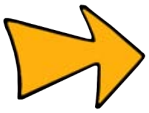
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Best time to cross. Early in the morning is the best time to cross. Rivers run slower in the morning because the water is colder at night.

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, link arms, with the strongest people at the end. 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 the 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:

- Plan the route. Evaluate the steps to take.
- Decide which rocks are stable.
- Test steps before committing.
- 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 stable. Crossing a log should be done one person at a time since weight can dislodge the log. If a bridge or a log is too narrow, unstable or high, shuffle across in a sitting position.



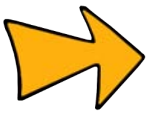
Unless trained in river rescue, hand-held rope should not be used. If a rope is fixed in place, it can be used to hold on to. Avoid getting tangled in the rope. Carabiners shall not be used to attach a person to the rope.

Waterlogged Ground

Avoid crossing waterlogged ground if possible. 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.

Natural hard spots. When planning a route, aiming for hard spots in the ground can save 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 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.



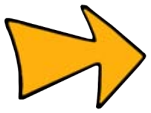
When crossing waterlogged grounds, boots should be tightly laced. Suction of mud may pull at the boots.

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Crossing Snow and Ice

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 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 rises 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 ice. Crossing ice requires caution. When crossing ice, one should use trekking poles to probe for holes or test the snow. On ice, do not 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.

ACTIVITY

Time: 130 min

OBJECTIVE

The objective of this activity is to have the cadets, in teams of no more than six, hike along a route with some Class 3 terrain.

RESOURCES

- Expedition field pack,
- Personal equipment,
- Hiking equipment, to include:
  - hiking boots (one pair per cadet),
  - day pack (one per cadet),
  - water carrier (one per cadet), and
  - trekking poles (two poles per cadet);
- Topographical / trail map of the area (two per team),
- Compass (one per team),
- Whistle (one per cadet),
- Communication device (two per team),

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- GPS Receiver (one per team),
- Batteries (spares for hand-held radio and GPS), and
- First aid kit (one per team).

ACTIVITY LAYOUT

Designate a hiking route with some Class 3 terrain.

ACTIVITY INSTRUCTIONS

1. Conduct a briefing, to include an explanation of:
    a. the objectives and importance of the activity;
    b. the resources that may be required to perform the activity; and
    c. any safety guidelines that must be followed while performing the activity.
2. Have the cadets, in teams of no more than six, hike along a route with some Class 3 terrain during an expedition to practice:
    a. executing the "rest step"; and
    b. employing proper techniques to:
        (1) hop boulders (as applicable),
        (2) cross scree (as applicable), and
        (3) cross a water obstacle (as applicable).
3. Conduct a debriefing by asking the cadets:
    a. how they felt about the activity,
    b. how they felt their team worked together;
    c. what portion of the activity challenged them the most;
    d. how their teammates assisted them when they were challenged;
    e. if there are any specific examples of when their team bonded;
    f. how the team made decisions;
    g. whether or not all team members ideas / suggestions were considered; and
    h. what they would do as a leader of this type of activity to ensure their subordinates enjoyed the experience.

SAFETY

- The cadets will respect the predetermined boundaries for this activity.
- Teams will travel in single file.
- Teams will not pass another teams / groups unless directed to do so by their team instructor.
- All the cadets must carry 1 L of water.
- A water supply will be available along the route.

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CONFIRMATION OF TEACHING POINT 1

The cadets' participation in hiking along a route will serve as the confirmation of this TP.

END OF LESSON CONFIRMATION

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

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

This EO is assessed IAW A-CR-CCP-704/PG-001, Gold Star *Qualification Standard and Plan*, Chapter 3, Annex B, 426 PC.

CLOSING STATEMENT

Hiking is one of three dynamic modes of transport that can be used during expedition training. It is critical that the cadets are given the opportunity to hike on routes which include some Class 2 terrain to prepare them for more advanced expedition experiences. Being aware of pacing and implementing the "rest step" while hiking will ensure a more enjoyable hiking experience for the individual and the team / group. When travelling on advanced hiking terrain, the possibility of encountering obstacles is quite great, therefore it is important that all members understand how to safely cross them.

INSTRUCTOR NOTES / REMARKS

Expedition centres are required to select two dynamic modes of travel from EO M426.02a (Paddle a Canoe), EO M426.02b (Ride a Mountain Bike), and EO M426.02c (Hike Along a Route) EO M426.02d (Snowshoe Along a Route) and EO M426.02e (Ski Along a Route) to incorporate into the expedition training.

This EO has been allocated nine periods in the overall course period allocation. Each expedition centre may adjust this allocation to reflect the choice of activities, facilities and available resources at the expedition centre.

Upon arrival at the expedition centre, cadets will be broken into teams. These teams will remain the same for the duration of the expedition.

IAW A-CR-CCP-930/AG-001, *Cadet Program Interim Activity Safety Direction*:

1. hiking equipment includes:
    - hiking boots, and
    - trekking poles; and
2. the following group hiking equipment is required when hiking:
    - topographical / trail map of area as required,
    - compass,
    - GPS receiver.

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- first aid kit, and
- communication device (eg, cellular phone or hand-held radio).

Ensure that each cadet has an ample supply of water when hiking.

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