

CHAPTER 13

PO 223 – HIKE ALONG A ROUTE AS PART OF AN OVERNIGHT EXERCISE



ROYAL CANADIAN ARMY CADETS

RED STAR

INSTRUCTIONAL GUIDE



SECTION 1

EO M223.01 – PREPARE FOR 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 A-CR-CCP-702/PG-001, Chapter 4. Specific uses for said resources are identified throughout the Instructional Guide within the TP for which they are required.

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

Review EO M123.01 (Select Trekking Gear) to prepare for the activity in TP1.

Review the activity for TP1 and set up the classroom as per the activity instructions.

Photocopy the handouts at [Annexes A, B and D](#) for each cadet. Prepare the cards at [Annex A](#) for the activity in TP1.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An in-class activity was chosen for TP1 and TP2 as it is an interactive way to present a personal kit list.

An interactive lecture was chosen for TP3 and TP4 to introduce preparing for a trek.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall be expected to prepare a personal kit list and physically prepare before a trek.

IMPORTANCE

It is important for cadets to know how to organize and prepare for a trek – selecting trekking gear, creating an important item lists and identifying the physical demands of a trek. Trekking is one component of expeditions. By being prepared for such an activity, cadets will be better equipped to meet the mental and physical challenges of an expedition.

Teaching Point 1**Conduct an Activity on Trekking Gear**

Time: 15 min

Method: In-class Activity

ACTIVITY

OBJECTIVE

The objective of this activity is to review the characteristics of trekking gear.

RESOURCES

For this activity, it is recommended to have two cadets help monitor the game.

- Pre-cut trekking gear cards located at [Annex A](#) (one set per team);
- Flip chart paper (one sheet per team); and
- Tape.

ACTIVITY LAYOUT

Set up two flipchart sheets side by side labelled Team A and Team B.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into two teams.
2. Have each team line up in front of their flipchart sheet.
3. The first cadet on each team will draw a trekking gear card.
4. Have the cadet read the characteristics on the card to their team. The team must guess what item the card is describing.
5. When the team guesses the item correctly, the cadet will go and post the card on the team's flipchart sheet.
6. The rest of the team (one after the other) will draw a card and repeat steps 4 and 5.
7. The first team that has all their cards posted, wins and can go on a trek.

SAFETY

N/A.

CONFIRMATION OF TEACHING POINT 1

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

Teaching Point 2**Conduct an Activity to Identify Permanent Items and a Personal Kit List**

Time: 15 min

Method: In-class Activity

Before going on a trek, it is essential that no extra equipment is carried. Avoid over packing to reduce the weight of the backpack. A checklist is a good way of keeping track of what is needed. After each trek, the list should be amended to reflect what was used and in what quantity in order to be prepared for the next time.

Before going on a trek, the following considerations will help when making a checklist:

- the distance (long distance treks determine the equipment one should bring);
- the type of terrain;
- the weather forecast; and
- the cadet's interests (photography, rock climbing, etc.).



Raingear and a first aid kit should always be part of your kit list.

PERMANENT ITEMS LIST

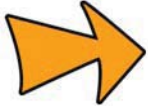
Personal Items. A personal items list will not change much from trek to trek. The following should be part of the list:

- personal hygiene kit (toothbrush and paste, biodegradable soap, razor, comb or brush, towel, toilet paper and women's sanitary supplies);
- personal medication;
- insect repellent;
- lip balm;
- cookware and utensils;
- pen and paper (notebook); and
- money.

Six Essential Items. The following items can be used to avoid difficult situations and prepare for the unexpected:

- a pocket knife or multi-tool;
- a water container;
- extra food (energy bars, dried fruit or nuts, hard candies, etc.);
- extra clothing (warm clothing and raingear);
- sunscreen and sunglasses; and
- a survival kit, to include:
 - a water filter;

- a flashlight;
- waterproof matches;
- a signalling device (e.g. whistle and mirror); and
- a first aid kit.



It is a good idea to layout all equipment before packing it. It allows the person to see what is there and if something is missing.

It is also a good way to see which items need to be put in plastic bags to keep them dry.

Last Minute Checklist. A checklist of things to do before a trek should always be kept up to date. The following should be considered:

- Fill water containers.
- Check equipment (cooking devices, boots, review the six essential items).
- Check for an updated weather forecast.
- Check trail conditions with local management or park office.



It is always a good idea to:

- make copies of the itinerary and leave one with local land management or the park office; and
- tell a reliable friend of the itinerary and what to do and who to contact if one does not return as scheduled.

ACTIVITY

Time: 10 min

OBJECTIVE

The objective of this activity is to identify items to include in a personal items list based on a weather forecast.

RESOURCES

- Pen; and
- Answer sheet and scenarios located at [Annex B](#).

ACTIVITY LAYOUT

N/A.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into groups of four.
2. Distribute one scenario (located at [Annex B](#)) to each group. It is acceptable for more than one group to have the same scenario.

3. Have cadets select the equipment from the list that they would take on a trek depending on the weather forecast on their sheet.
4. Give them five minutes to identify their items. Review the answers as a group. If there is a mistake, explain why it is not the best choice. The answer key is located at [Annex C](#).

SAFETY

N/A.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS

- Q1. What are some considerations that help a cadet make a checklist?
- Q2. Name three items that fall under a permanent list.
- Q3. Name three items that fall under the six essential list.

ANTICIPATED ANSWERS

- A1. Some considerations are the distance, the type of terrain, the weather forecast and the cadet's interest.
- A2. Personal hygiene kit, personal medication, insect repellent, lip balm, cookware and utensils, pen, paper or notebook and money are items that fall under the permanent list.
- A3. Pocket knife or multi-tool, water container, water filter, flashlight, extra food, extra clothing, waterproof matches, sunscreen, sunglasses, signalling device and first aid kit are items that fall under the six essential list.

Teaching Point 3

Discuss the Physical Demands of a Trek

Time: 5 min

Method: Interactive Lecture

In order to facilitate the trek, one should have the physical strength to trek successfully. By working toward improving cardiovascular endurance, strength and balance, one should have fewer difficulties completing an all day trek.

Cardiovascular Endurance. Improving cardiovascular endurance means to strengthen the heart, lungs and leg muscles. It will enhance the body's ability to deliver larger amounts of oxygen to working muscles. By doing so, the muscles will develop a greater capacity to use oxygen and it will be easier to recover from the stress of exercise. It will also increase energy level and allow the cadet to hike longer on uneven terrain.

Strength. Improving strength means developing muscle tone. By doing so, endurance will increase. It will make a difference on the distance of the trek and when crossing obstacles with a backpack. Greater strength means the trekker will hike longer and, with little difficulty, across uneven terrain.

Balance. Improving balance means improving physical skills and increasing body control and awareness. It improves stability and helps avoid injuries. Good balance improves walking techniques on uneven terrain and helps when crossing obstacles.

CONFIRMATION OF TEACHING POINT 3

QUESTIONS

- Q1. What parts of the body are strengthened by cardiovascular activities?
- Q2. What does improving strength mean?
- Q3. What can you avoid if you improve your balance?

ANTICIPATED ANSWERS

- A1. Cardiovascular activities will strengthen the heart, lungs and leg muscles.
- A2. Improving strength means developing muscle tone.
- A3. You can avoid injuries.

Teaching Point 4

Discuss How to Physically Prepare for a Trek

Time: 15 min

Method: Interactive Lecture

EXERCISES TO BUILD BODY STRENGTH

Aerobic Exercises

It is recommended to improve cardiovascular endurance by practicing activities that one enjoys. Consistency is the key to success. Exercises should focus on increasing distance and duration as personal fitness improves. Exercises should be regular and well-balanced.



When increasing your cardiovascular and strength training activities, it is important to remember that pain is not an indicator of improvement.

To improve cardiovascular endurance, practice some of the following activities twice a week for at least 20 minutes:

- cycling (road or mountain biking);
- walking (on flat ground, briskly walk for a minimum of 40 minutes);
- going to the gym (stationary bike, cross trainer, rowing machine, etc.);
- running (progress from brisk walking to jog-walking to running);
- participating in classes (aerobics, step-aerobics, aqua-aerobics);
- swimming (lane swimming);
- playing any racquet sports;
- playing soccer; and
- any activities that use arms and legs causing the pulse to work at a minimum of 65% of one's maximum heart rate.

In order to keep interest, a person should vary their aerobic activities.



Remember, being active is easy to achieve without spending money or a great deal of time organizing an activity.

Strength Building Exercises



For this part, demonstrations may be performed by the instructor or an assistant instructor.

Distribute the handout, located at [Annex D](#), to the cadets.

Explain to the cadets that if at any point these exercises hurt the body or become difficult, they should stop immediately.



For all weight exercises, weights should be conducive to fitness level. It should start with one pound and progress with the fitness level. Cadets do not have to buy a set of hand weights. They can use any objects with a handle (milk jug, soft drink or water bottle filled with sand or water).

Any “homemade” weights need to be weighed to ensure the pair are the same.



With any weight training, cadets should remember to:

- Control their movements in order to avoid swinging the weights.
- Avoid using the momentum to lift the weights.
- Stop any exercises that hurt or do not feel right.

LEGS

Abductor Raise. Lie on the floor on the left side with the left leg slightly bent. Use the left hand to support the head and place the right hand in front for support. Keeping the right leg straight and in line with the body, raise it with a slow, controlled movement. Hold for one second, lower and then repeat. This exercise should be repeated a minimum of 10 times on both sides.



Yahoo Health, 2007, Basic Muscle-conditioning Exercises, Copyright 2002 by Nucleus Communications Inc. Retrieved 29 March 2007, from <http://health.yahoo.com/topic/weightloss/overview/article/healthwise/popup/zm2427>

Figure 13-1-1 Abductor Raise

Lunge. Keep hands on sides with feet shoulder-width apart. Step forward with one leg, bending both knees until the thigh is parallel with the knee. Push back to the starting position. Alternate legs. Do not let the knee touch the ground. This exercise should be repeated a minimum of 10 times on both sides.



Department of Public Health County of Los Angeles California, 2006, LAPublicHealth.org/Strength Training, Copyright 2006 by LADPH. Retrieved 27 March 2007, from <http://www.lapublichealth.org/physact/physactstrength.htm>

Figure 13-1-2 Lunges With Weights

Glutes Raise. Support body weight on the elbows and knees with hands together in front. The back should stay straight. Keeping the right leg bent, raise it into the air. Press up into the heel. Count two seconds up and two seconds down. This exercise should be repeated a minimum of 10 times on both sides.

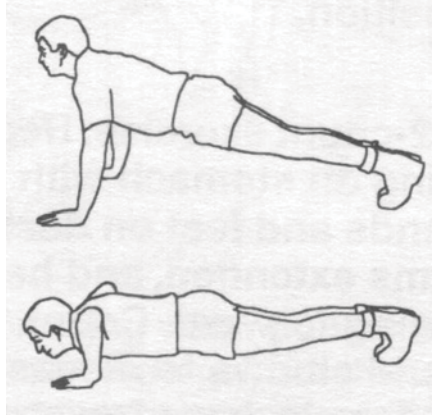


Bodybuilding.com, 2007, Exercise Guides-Glute Kickback, Copyright 2007 by Bodybuilding.com. Retrieved 29 March 2007, from <http://bodybuilding.com/fun/exercises.php?mainmuscle=glute>

Figure 13-1-3 Glutes Raise

ARMS

Pushups. Place hands directly under the shoulders, keeping fingers pointed forward and legs in line with the body. Lower the body toward the floor without touching it and then push off the floor to the start position. Do as many as you can.

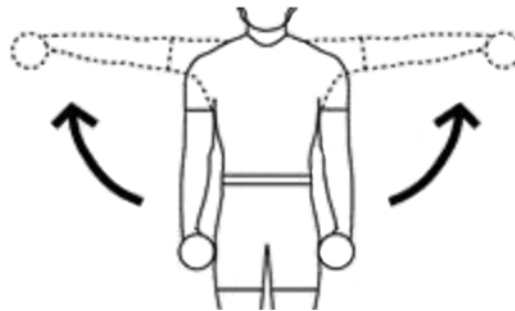


The Fitness Motivator.com, 2006, Add these Basic Exercises to your fitness plan. Retrieved on 29 March 2007, from <http://www.the-fitness-motivator.com/basicexercises.html>

Figure 13-1-4 Push Up

BACK AND SHOULDERS

Lateral Raise With Weights. Hold weights at the sides, palms facing in. Slowly raise arms to shoulder level and lower. Keep arms and wrists straight. This exercise should be repeated a minimum of 10 times on both sides.

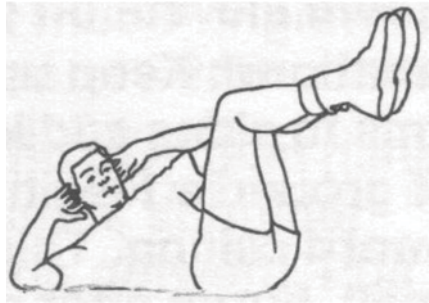


Weight Lifting Workout Routines, 2006, Shoulder Exercises, Copyright, 2006 by Weight Lifting Workout Routines. Retrieved 29 March 2007, from <http://www.weight-lifting-workout-routines.com/shoulder-exercises.html>

Figure 13-1-5 Lateral Raise With Weights

STOMACH

Crunches. Lie on the back bringing the legs up over the hips and cross the ankles. Place the arms either on the thighs, across the chest or beside the head (hardest). Pull stomach muscles in tight and then slowly curl up using abs to lift shoulders from the ground at the same time. Do not swing legs. This exercise should be repeated a minimum of 10 times for the left and right side. The number of repetitions can increase with comfort level.



*The Fitness Motivator.com, 2006, Add these Basic Exercises to Your Fitness Plan.
Retrieved on 3 April 2007, from <http://www.the-fitness-motivator.com/basicexercises.html>*

Figure 13-1-6 Crunches Position

STRETCHING EXERCISES BEFORE AND DURING THE TREK

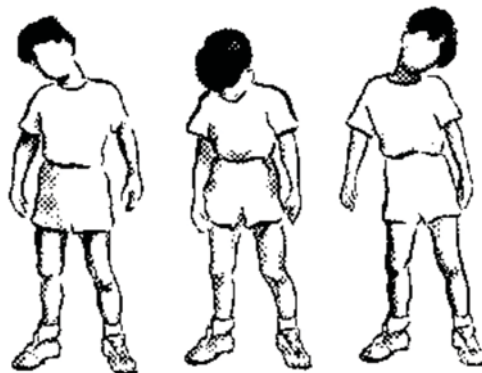
The following exercises should be conducted before and after a trek. They will reduce stiffness of muscles and prevent any stress or possible injuries.



It is a good idea, during the trek, to use a few minutes of your rest breaks to stretch.

Warming up before a trek allows the muscles to loosen. Stretches should be executed slowly and smoothly. Bouncing exercises or forced stretches are not recommended.

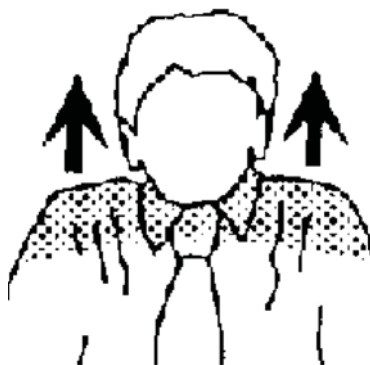
Neck. Slowly roll the head across the chest from shoulder to shoulder. Do not roll head backwards. This exercise should be repeated 10 times.



Moving on the Spot: A Collection of 5-Minute Stretch and Movement Sessions, by B. Hanson, 1999, Toronto, ON: Toronto Public Health. Retrieved 26 October 2006, from <http://www.lin.ca/resource/html/dn3.htm#1>

Figure 13-1-7 Neck Stretch

Shoulders. Stand and raise the top of the shoulders toward the ears until a slight tension in the neck and shoulders is felt. Hold for five seconds. Then relax shoulders downward. This exercise should be repeated a minimum of 10 times.



University of Michigan Occupational Safety and Environmental Health, 2007, Basic Office Stretches, Copyright 2007 by The Regents of the University of Michigan. Retrieved 28 March 2007, from http://www.oseh.unmich.edu/ergonomics_intro.html

Figure 13-1-8 Shoulders Stretch

Triceps and Top of Shoulders. Stand up and bring the right arm over the head, bent at the elbow. Use the left hand to gently pull the arm down. Hold this position for a minimum of 10 seconds. This exercise should be repeated a minimum of 10 times on both sides.



Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Figure 13-1-9 Triceps Stretch

Shoulders, Arms and Chest. Interlace fingers behind the back. If this feels fairly easy, then lift the arms up behind the back until a stretch is felt in the arms, shoulders, or chest. Hold for 10 to 15 seconds. Keep chest and chin out.



University of Michigan Occupational Safety and Environmental Health, 2007, Basic Office Stretches, Copyright 2007 by The Regents of the University of Michigan. Retrieved 28 March 2007, from http://www.oseh.unmich.edu/ergonomics_intro.html

Figure 13-1-10 Shoulders, Arms and Chest Stretch

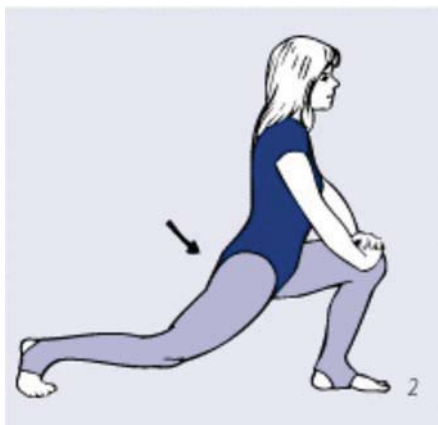
Hamstrings, Back Knees and Legs. Stand with the feet shoulder-width apart and pointed straight ahead. Slowly bend forward from the hips. Keep the knees slightly bent. Go to the point where a slight stretch is felt in the back of your legs. Hold for 10 to 15 seconds.



PC Coach, 2005, Stretching for Runners, Copyright 2005 by Biometrics Inc. Retrieved on 29 March 2007, from <http://www.pccoach.com/newsletters/may05/stretching.htm>

Figure 13-1-11 Hamstring, Back Knees and Leg Stretch

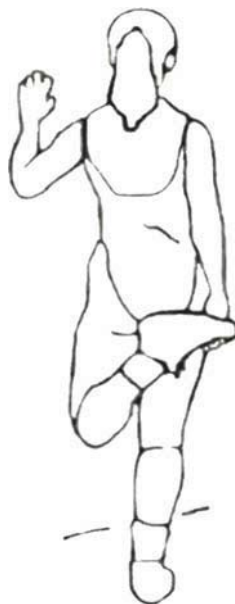
Front Hip and Lower Back Area. Start with one leg in front of the other, with the ankle of the front leg directly below the front knee. The other knee is resting on the ground. Place the hands on top of each other on the thigh, just above the knee. Hold for 10 to 15 seconds and repeat for the other side.



ARC Committed to Curing Arthritis, 2007, Back Pain, Copyright 2007 for Arthritis Research Campaign. Retrieved 27 March 2007, from http://www.arc.org.uk/about_arth/booklets/6002/6002

Figure 13-1-12 Stretch for Hip and Lower Back Area

Quads and Knees. Hold the top of the right foot with the left hand and gently pull the heel toward the buttocks. The knee bends at a natural angle when holding the foot with the opposite hand. Hold for 10 to 15 seconds and repeat for the other leg.



Women's Heart Foundation, 2005, Stretching Exercises for Women, Copyright 2005 for Women's Heart Foundation. Retrieved 28 March 2007, from http://www.womensheart.org/content/exercises/stretching_exercises.asp

Figure 13-1-13 Quads and Knees Stretch

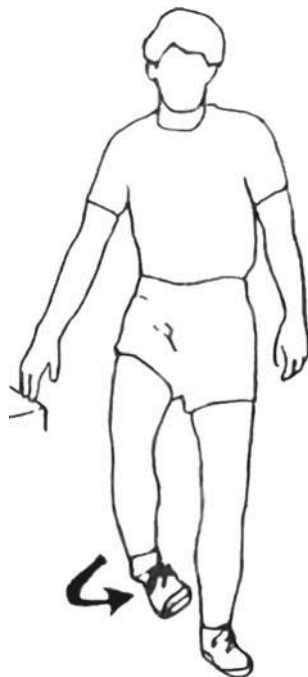
Squat. Squat down with feet flat and toes pointed out at 15 degrees. Heels should be apart depending on how flexible one is. Keep knees to the outside of the shoulders, directly above the big toes. Hold for 15 to 30 seconds. Using a fence or pole for balance is acceptable.



The Back Rack, 1999, Cycling Stretches After Riding, Copyright 1999 by Stretching Inc. Retrieved 29 March 2007, from <http://thebikerack.com/page.cfm?pagelId=247>

Figure 13-1-14 Squat Position

Ankles. Lift the left foot off the ground and rotate the foot and ankle 10 to 15 times clockwise and then counterclockwise. Repeat for the right foot and ankle.



Women's Heart Foundation, 2005, Stretching Exercises for Women, Copyright 2005 by Women's Heart Foundation. Retrieved 28 March 2007, from http://www.womensheart.org/content/exercises/stretching_exercises.asp

Figure 13-1-15 Ankle Rotation

CONFIRMATION OF TEACHING POINT 4

QUESTIONS

- Q1. Name two aerobic activities that improve strength.
- Q2. Why is it important to stretch before, during and after a trek?

Q3. If experiencing pain during a stretch, what should you do?

ANTICIPATED ANSWERS

- A1. Cycling, walking, running, aerobic classes, swimming, squash, soccer and any other activities that use arms and legs are all aerobics activities.
- A2. Stretching allows the muscles to warm up and loosen and will reduce stiffness in the muscles for the trekker. It will prevent any stress or possible injuries.
- A3. Stop the stretch and ask for help.

END OF LESSON CONFIRMATION

QUESTIONS

- Q1. What can you do to improve your cardiovascular endurance?
- Q2. Name the exercise that can improve your back/shoulders strength.
- Q3. Why should you stretch before, during and after the trek?

ANTICIPATED ANSWERS

- A1. Practice favourite activities such as cycling, walking, gym, running, classes, swimming, squash, soccer or any other activities that use arms and legs.
- A2. It is the lateral raise with weights.
- A3. Stretching allows the muscles to warm up and loosen while reducing stiffness in the muscles for the trekker and preventing any stress or possible injuries.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Knowing how to prepare for a trek may save time and prevent difficult experiences. It is imperative for cadets to be prepared before leaving for a trek as it may make the trip easier and more enjoyable for everyone.

INSTRUCTOR NOTES/REMARKS

For the activity in TP1, trekking equipment may be borrowed. Some sponsors may be able to provide a deposit so that some outdoor stores will loan outdoor equipment. This activity may also be conducted in an outdoor store.

A hand out on the exercises and stretches is located at [Annex D](#).

REFERENCES

- C0-089 (ISBN 0-936070-22-6) Anderson, B. (2000). *Stretching 20th Anniversary* (Rev. ed.). Bolinas, CA: Shelter Publications Inc.
- C2-016 (ISBN 0-517-88783-5) Curtis, R. (1998). *The Backpacker's Field Manual: A Comprehensive Guide to Mastering Backcountry Skills*. New York, NY: Three Rivers Press.
- C2-017 (ISBN 0-7627-0476-4) Roberts, H. (1999). *Basic Essentials, Backpacking*. Guilford, CT: The Globe Pequot Press.
- C2-042 (ISBN 0-7566-0946-1) Berger, K. (2005). *Backpacking & Hiking*. New York, NY: DK Publishing, Inc.
- C2-051 (ISBN 978-0-7153-2254-3) Bagshaw, C. (Ed.). (2006). *The Ultimate Hiking Skills Manual*. Cincinnati, OH: David & Charles.



ROYAL CANADIAN ARMY CADETS

RED STAR

INSTRUCTIONAL GUIDE



SECTION 2

EO M223.02 – IDENTIFY HIKING/TREKKING ASSOCIATIONS

Total Time:

30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

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

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

To facilitate the delivery of TP1, seek out hiking/trekking associations in your community and use them in the provincial associations portion of the TP.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for this lesson to give an overview of civilian hiking/trekking organizations, their mandate and the government resources available.

INTRODUCTION

REVIEW

N/A.

OBJECTIVES

By the end of this lesson the cadet shall have participated in a discussion on hiking/trekking associations.

IMPORTANCE

It is important for cadets to know the civilian resources available in the world of hiking and trekking, as it may help them develop an interest in those activities.

Teaching Point 1**Identify Civilian Hiking/Trekking Organizations and Their Mandate**

Time: 20 min

Method: Interactive Lecture

NATIONAL ASSOCIATIONS**The Alpine Club of Canada**

The Alpine Club of Canada is a national mountaineering organization. It was created in 1906 with the support of Pacific Railway. It is now based in Canmore, Alberta. The Alpine Club of Canada has 19 regional clubs: Vancouver Island, Vancouver, Whistler, Okanagan, Prince George, Rocky Mountain, Jasper, Calgary, Central Alberta, Edmonton, Saskatchewan, Manitoba, St. Boniface, Thunder Bay, Toronto, Outaouais, Ottawa, Montreal, and Montréal (français).

The Alpine Club of Canada offers the following to its members:

- mountain adventures opportunities (rock climbing, mountaineering courses, trips or activities);
- rental opportunities for huts and cabins;
- climbing competitions;
- social events; and
- publications related to the mountain culture.

The Alpine Club of Canada is also involved in the community. It offers grants to mountaineering projects and has a protection and environmental conservation program.



To contact the Alpine Club of Canada: <http://www.alpineclubofcanada.ca/>.

Trails Canada

Launched in June 2000, Go Green was created to support and promote Canadian trails and the Canadian trails system. It also provided Internet resources on the trail system. Go Green was a partnership between Trails Canada, COMPAQ Canada and Government of Canada Millennium Partnership Grant. Four years later, the name of the Website was changed to Trails Canada. Trails Canada's mission is to create a trail network dedicated to helping people find trails in any province or territory.

Trails Canada provides the following:

- on-line tools and support services for trail users and community trail groups;
- inventories of Canadian trails by region;
- descriptive information on trail terrain, scenery, nature notes, accessibility, etc.;
- trail construction and advocacy tools for communities;
- on-line trail registry allowing community trail groups to promote their trails worldwide;
- news and information through an on-line newsletter (The Pathfinder); and

- a calendar of events allowing community groups to promote trail activities to a worldwide audience.

The trail inventory now contains more than 3900 trails, with entries in every province and territory in Canada.



To contact Trails Canada: <http://www.trailsCanada.com/index.htm>.

The Trans Canada Trail

The Trans Canada Trail is a community-based project. It is owned, operated and maintained by local organizations, municipalities, provincial authorities and national agencies across Canada. The Trans Canada Trail is a recreational trail that crosses the country.

This 18 000 km recreational corridor winds its way through every province and territory, linking over 800 communities along its route. When completed, this will be the longest trail of its kind in the world, connecting regions and the three oceans.

The Trans Canada Trail provides the following:

- maps of the majority of the trail's section;
- guidebooks; and
- a Website trail locator.



To contact the Trans Canada Trail: <http://www.tctrail.ca/home.php>.

PROVINCIAL ASSOCIATIONS



Focus on the associations from your province only. If time allows, associations from neighbouring provinces may be presented.

Kootenay Mountaineering Club (BC)

The Kootenay Mountaineering Club (KMC) started in April 1964 as a section of the Alpine Club of Canada. In 1968, the section was dissolved and in 1969, the same group was resurrected as the Kootenay Mountaineering Club. The KMC is a non-profit society based in the Kootenay region of southeastern British Columbia. The KMC promotes an interest in, and the development of, mountaineering skills, fellowship, and conservation of the natural values in the mountains.

The KMC organizes outdoor activities year round including: hiking, climbing, skiing, and mountain biking trips; hiking and climbing camps; and training classes to teach basic mountaineering skills. KMC also organizes a number of social gatherings during the year. It is involved in building and maintaining huts and trails throughout the Kootenay region.

The KMC publishes a monthly newsletter, which includes a list of upcoming activities, descriptions of recent trips, comments on issues in which the Club is involved, and other articles of general interest. The KMC also publishes an annual journal and maintains a library of mountaineering books and magazines.

The KMC also takes an active role in conserving and defending the natural values of the mountains.



To contact the Kootenay Mountaineering Club: <http://www.kootenaymountaineering.bc.ca/>.

West Coast Trail (BC)

The West Coast Trail is located on the southern west coast of Vancouver Island and stretches 75 km from Port Renfrew on the south end to Bamfield on the north end.

The West Coast Trail is one of three components of the Pacific Rim National Park Reserve of Canada.

The trail started with a shipwreck back on January 22, 1906. The 77 m vessel SS Valencia ran aground just north of Klanawa River on Vancouver Island's west coast. The wild and rugged shoreline, bordering a temperate rain forest, offered no relief whatsoever and the lives of all 126 passengers were lost. This tragic event spurred the government at that time to construct a trail between Port Renfrew and Bamfield in case of future shipwrecks (as this section of the Pacific had been the site of more than 60 shipwrecks since 1854). The present West Coast trail generally follows the route of the historic life- saving trail.

Through the Pacific Rim National Park Reserve of Canada, Parks Canada manages the reservations for any activities on the trail.

Edmonton Outdoor Club (AB)

Founded March 1, 2006, the Edmonton Outdoor Club (EOC) is a volunteer-run organization for adults, featuring adventure sports (mostly non-competitive), social events and travel excursions in and around the Edmonton area. The EOC's mission is to provide its members with fun experiences, the opportunity to network, and the ability to learn about and participate in local adventure sports.

The EOC hosts a wide variety of events every year, including:

- adventure sports – hiking, camping, backpacking, mountain biking, paddling, skiing, skating, snow shoeing, etc.;
- social events – socials, spectator sporting events, etc.; and
- travel – adventure trips and expeditions to various parts of Canada and the U.S., and possibly beyond.

Membership is open to any interested adult, regardless of their experience level. Members pay only for those events they attend and membership is free, although member support, in the form of both time and monetary donations, is solicited to keep the club running. There is no paid staff.



To contact the Edmonton Outdoor Club: <http://www.edmontonoutdoorclub.com/>.

Manitoba Recreational Trails Association Inc. (MB)

The Manitoba Recreational Trails Association (MRTA) is the official body overseeing the coordination of the building of the Trans Canada Trail in Manitoba. It is composed of volunteers and is located in Winnipeg. The MRTA helps with:

- providing funding to recognized trail associations for trail development;
- providing trail-building resources to trail associations;
- promoting the Trans Canada Trail in Manitoba; and
- promoting other trails and trail use in Manitoba.



To contact the Manitoba Recreational Trails Association Inc: <http://www.mrta.mb.ca/>.

Hike Ontario (ON)

Hike Ontario was founded in 1974 and is a non-profit organization dedicated to serving the needs of all hikers and walkers in the province of Ontario. Hike Ontario does not make or maintain trails, nor does it offer organized hiking/walking events, except through its member associations.

Hike Ontario's mission is to encourage walking, hiking and trail development in Ontario. It also provides a list of clubs one can join and a list of various hiking, trekking and mountaineering courses one can take.



To contact Hike Ontario: <http://www.hikeontario.com/>.

Ontario Trails Council (ON)

The Ontario Trails Council (OTC) was established in 1988. It started as a coalition of trail user groups, such as hikers, cyclists, snowmobilers, equestrians, etc. with a shared interest in trails and the conservation of abandoned rail lines for use as trails. It is a volunteer led, charitable organization, promoting the creation, preservation, management and use of recreational trails in Ontario.

Memberships have broadened to include other similar trail organizations and others with similar interests and values.

The following are the OTC's goals:

- Encourage the establishment of the Trillium Trail Network.
- Increase the number, length, variety and accessibility of trails throughout the province.
- Provide government and other public bodies with an informed, credible voice in support of trail interest groups.
- Promote the safe and responsible use of trails.
- Act as a provincial resource centre for trail information.



To contact The Ontario Trails Council: <http://www.ontariotrails.on.ca/>.

Toronto Outdoor Club (ON)

Founded May 1, 2005, the Toronto Outdoor Club (TOC) is a volunteer-run organization for adults, featuring adventure sports (mostly non-competitive), social events and travel excursions in and around the Toronto area. The TOC's mission is to provide its members with fun experiences, the opportunity to network, and the ability to learn about and participate in local adventure sports.

The TOC hosts a wide variety of events every year, including:

- adventure sports – hiking, camping, backpacking, mountain biking, paddling, skiing, skating, snow shoeing, etc.;
- social events – socials, spectator sporting events etc.; and
- travel – adventure trips and expeditions to various parts of Canada and the U.S., and possibly beyond.

Membership is open to any interested adult, regardless of their experience level. Members pay only for those events they attend and membership is free, although member support, in the form of both time and monetary donations, is solicited to keep the club running. There is no paid staff.



To contact the Toronto Outdoor Club: <http://www.torontooutdoorclub.com/>.

The Bruce Trail Association

The Bruce Trail is the oldest and longest continuous footpath in Canada. It runs along the Niagara Escarpment from Niagara to Tobermory, spanning more than 850 km of main trail and 250 km of side trails. It started in 1960 with the idea of a public footpath spanning the entire Niagara Escarpment. Regional clubs were established in 1963 and they were responsible for organization, landowner approvals, construction and maintenance.

The Bruce Trail Association is a charitable organization committed to establishing a conservation corridor containing a public footpath along the Niagara Escarpment, in order to protect its natural ecosystems and to promote environmentally responsible public access to this UNESCO World Biosphere Reserve.



To contact the Bruce Trail Association: <http://www.brucetrail.org/>.

Fédération québécoise de la marche (QC)

The Fédération québécoise de la marche was created to promote any type of walk. Four times a year, the Federation publishes a magazine called "Marche Randonnée". It contains calendars, information on upcoming activities, suggestions on hiking and trails to use, information on health, lifestyle, environmental issues and information and advice on new equipment, etc. Everything is related to hiking and trekking.

The federation is involved in the Trans Canada Trail project and promotes good trail etiquette.

The federation also publishes a book on trails and locations one can use in the province of Quebec.



To contact the Fédération québécoise de la marche: <http://www.fqmarche.qc.ca/>.

Le club de montagne Le Canadien (QC)

Le club de montagne Le Canadien was created in 1949 and is one of the oldest francophone clubs in North America. It is a volunteer-based organization that focuses on outdoor activities. The club organizes yearly activities like:

- hiking and trekking;
- camping; and
- cross-country skiing and snowshoeing.

For all of its activities, the club offers carpooling opportunities to reduce the impact on the environment. It also organizes volunteer groups to maintain and clean trails in regions of Quebec.

The club publishes a monthly bulletin on its activities.



To contact Le club de montagne Le Canadien: <http://www.clubmontagnecanadien.qc.ca/>.

The International Appalachian Trail (QC)

The International Appalachian Trail started in 1996. The layout was coordinated by the corporation International Appalachian Trail-Quebec (IAT-QC). Many volunteers and organizations in each region crossed by the trail were involved in the project.

The trail is 644 km long and extends from Cap-Gaspé, located in Forillon National Park (QC), to Matapédia (QC).

The International Appalachian Trail symbolizes the will of the people of Quebec, New Brunswick and Maine to collaborate in the protection and promotion of the environment that joins them. The association was given the objective to arrange a path approximately 1034 km in length, including approximately 600 km in Quebec, 274 km in New Brunswick and 160 km in Maine. The Appalachian Trail, which was built over 60 years ago and which attracts approximately 37 million hikers annually to its 3455 km trail, connects the Quebec path to Mount Katahdin, in Maine.

Consequently, the International Appalachian Trail is 4489 km in length, which makes it the longest path in North America. For comparison, the Great Wall of China is only 3000 km.

The association can provide:

- a trip planner;
- maps;
- information on campgrounds and shelters; and
- information on flora and fauna.



To contact The International Appalachian Trail (QC): <http://www.sia-iat.com>.

To use the International Appalachian Trail, a permit is needed.



The International Appalachian Trail has a chapter in Newfoundland and Labrador. To contact the Newfoundland and Labrador chapter: www.internationalat.org/pages/index.

New Brunswick Trail Council Inc. (NB)

The New Brunswick Trails Council Inc. (NBTCI) is a non-profit, membership/volunteer organization dedicated to the advancement of the trails movement in New Brunswick. Its mandate is to work for the improvement of trails throughout New Brunswick and to help local trail sponsors build, maintain, and promote their local trails.

The NBTCI provides a safe trail network with rules for use of trails and enforcement. It also offers the following:

- trail related expertise, consulting, and information;
- trail guides;
- newsletters;
- updated Website;
- Adopt a Trail program; and
- trail patrol service.



To contact the New Brunswick Trail Council Inc: <http://www.sentiernbtrail.com/>.

The Nova Scotia Trails Federation (NS)

The Nova Scotia Trails Federation (NSTF) was created in 1988 and is a non-profit organization. The primary goal of the NSTF is to promote the development and responsible use of recreational trails for the benefit and enjoyment of all visitors. It also represents the interest of trail users and community-based recreational trail groups across Nova Scotia. NSTF supports local groups in their efforts to plan, build, maintain and manage their segments of trail.

The NSTF has adopted the motto “Take Trails to H.E.A.R.T”. The letters in H.E.A.R.T stand for health, environment, arts (culture and heritage), recreation and transportation.

On the NSTF web site, one can find the following:

- a trail finder;
- trail etiquette and safety; and
- a newsletter “Trail Talk”.

The NSTF also provides a trail patrol service.



To contact the Nova Scotia Trails Federation: <http://novascotiatrails.com/>.

Island Trails (PE)

Island Trails is a non-profit organization dedicated to the development, maintenance, and promotion of Prince Edward Island's network of trails.

The organization provides help in planning expeditions and a virtual trail finder. Trails are accessible for the following activities:

- hiking;
- trekking;
- cycling; and
- snowmobiling.



To contact Island Trails: <http://www.islandtrails.ca/>.

East Coast Trail (NL)

The East Coast Trail association is a member driven, volunteer based, non-registered charity formed in 1994 in Newfoundland and Labrador. Its mission is to develop, maintain and operate the East Coast Trail and deliver a high quality wilderness hiking experience, while respecting the integrity of the environment and the needs of communities.

There is no fee to use the trail and no fees to participate in the public hiking program.

The association provides access to abandoned settlements, lighthouses, ecological reserves, seabird colonies, whales, icebergs, the world's southern-most caribou herd, historic sites, a 50-metre suspension bridge and two active archaeological dig sites.



To contact East Coast Trail: <http://www.eastcoasttrail.com/>.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS

- Q1. Name three national hiking/trekking associations.
- Q2. What is the mission of Trails Canada?
- Q3. Name any three provincial associations.

ANTICIPATED ANSWERS

- A1. The Alpine Club of Canada, Trails Canada and the Trans Canada Trail are three national hiking/trekking associations.
- A2. Trails Canada's mission is to create a trail network dedicated to helping people find trails in any province or territory.
- A3. Kootenay Mountaineering Club (BC), West Coast Trail (BC), Edmonton Outdoor Club (AB), Manitoba Recreational Trails Association Inc. (MB), Hike Ontario (ON), Ontario Trails Council (ON), Toronto Outdoor Club (ON), The Bruce Trail Association (ON), Fédération québécoise de la marche (QC), Le club de montagne Le Canadien (QC), The International Appalachian Trail (QC), New Brunswick Trail Council (NB), The Nova Scotia Trails Federation (NS), Island Trails (PE) and East Coast Trail (NL) are all the provincial associations.

Teaching Point 2

Identify Government Hiking/Trekking Resources

Time: 5 min

Method: Interactive Lecture



Park wardens patrol all national and provincial parks. Parks have offices with which users may have to register or get a permit before entering. It is always a good idea to check in with park offices before starting an expedition. Parks wardens should be aware of travel intentions and the return date. Users should also check out with park offices on leaving the park after their expedition.

PARKS CANADA

Parks Canada is a federal government department that has been working to protect and present Canada's natural and cultural heritage for over a century. Park Canada's mandate is also to foster public understanding, appreciation and enjoyment in ways that ensure ecological integrity of their parks.

Parks Canada works with other government departments and non-governmental agencies to provide trip planning and safety information for visitors. It is also responsible for search and rescue within any national parks.

Parks Canada oversees four main departments:

- National Parks;
- National Marine Conservation areas of Canada;
- Cultural Heritage; and
- Natural Heritage.

Parks Canada has established policies for park users. Since national parks are protected areas, the policies concern the respect of other users, the environment and wildlife.

Parks Canada also provides the following services:

- a list of all National parks and their location;
- a list of campgrounds available, their cost and a reservation service;
- a list and maps of their trails;
- youth and group programs; and

- a help desk service to help users plan their trips.

Any national park will have a visitor information service.



To contact Parks Canada: <http://www.pc.gc.ca/>.

PROVINCIAL PARKS

Provincial Parks are overseen by their provincial government. The majority of provincial parks work in collaboration with Parks Canada to keep a similar code of ethics, policies for park users and activities.

Provincial parks usually offer the following:

- accommodations, campgrounds and reservation service; and
- guides and maps of trails and activities offered.

Activities within provincial parks may change from province to province. Here is a brief list of typical activities one may find in a provincial park:

- cross country skiing;
- cultural/natural exhibits;
- cycling;
- fishing (locations);
- guided hikes;
- hiking and trekking;
- kayaking and canoeing;
- rock climbing areas;
- snowshoeing; and
- swimming.



- British Columbia: <http://www.env.gov.bc.ca/bcparks/>.
- Alberta: http://www.cd.gov.ab.ca/enjoying_alberta/parks/planning/gateway/index.aspx.
- Saskatchewan: <http://www.se.gov.sk.ca/saskparks/>.
- Manitoba: <http://www.gov.mb.ca/conservation/parks/>.
- Ontario: <http://www.ontarioparks.com/english/index.html>.
- Quebec: <http://www.sepaq.com/index-en.html>.
- New Brunswick: <http://www.tourismnewbrunswick.ca/enCA/HNNationalAndProvincialParks/>.
- Nova Scotia: <http://parks.gov.ns.ca/>.
- Newfoundland and Labrador: <http://www.env.gov.nl.ca/parks/>.
- Yukon, North West Territories and Nunavut only have national parks. The information is available on Parks Canada Website.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS

- Q1. Name the four departments that Parks Canada oversees.
- Q2. Name two services that can be provided by Parks Canada.
- Q3. Name four typical activities one may find in a provincial park.

ANTICIPATED ANSWERS

- A1. Parks Canada oversees national parks, the national marine conservation areas of Canada, cultural heritage and natural heritage.
- A2. Parks Canada can provide a list of all national parks and their location, a list of campgrounds available, their cost and a reservation service, a list and maps of their trails, youth or group programs and a help desk service to help users plan their trips.
- A3. Cross country skiing, cultural/natural exhibits, cycling, fishing (locations), guided hikes, hiking and trekking, kayaking and canoeing, rock climbing areas, snowshoeing, and swimming are the typical activities one can find in a provincial park.

END OF LESSON CONFIRMATION

QUESTIONS

- Q1. Name three national hiking/trekking associations.
- Q2. What is the mandate of Parks Canada?
- Q3. What are the two things a provincial park usually provides?

ANTICIPATED ANSWERS

- A1. The Alpine Club of Canada, Trails Canada and the Trans Canada Trail are three national hiking/trekking associations.

- A2. Parks Canada's mandate is to work to protect and present Canada's natural and cultural heritage and to foster public understanding, appreciation and enjoyment in ways that ensure ecological integrity of their parks.
- A3. Provincial parks provide accommodations and campgrounds to rent, a reservation service and guides, maps of trails and activities.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

N/A.

CLOSING STATEMENT

Knowing about the civilian hiking/trekking associations in your province may be very practical when planning an expedition. Government departments and civilian associations can provide useful information and educate novice trekkers.

INSTRUCTOR NOTES/REMARKS

N/A.

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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.

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 13-3-1 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 13-3-2 Telescoping Trekking Pole



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 13-3-3 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.



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 13-3-4 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 13-3-5 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.



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 13-3-6 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 13-3-7 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.



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 13-3-8 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.



*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 13-3-9 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 13-3-10 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.



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.



*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 13-3-11 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 scrambling.

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 13-3-12 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?

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 13-3-13 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.

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

Time: 10 min

Explain Crossing Water Obstacles

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.

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.

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?

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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- C0-111 (ISBN 978-0-9740820-2-8) Tawrell, P. (2006). *Camping and Wilderness Survival: The Ultimate Outdoors Book* (2nd ed.). Lebanon, NH: Leonard Paul Tawrell.
- C0-145 OutdoorPlaces.com. (2004). Buying Guides, Trekking Poles. Retrieved 17 April 2007, from http://www.outdoorplaces.com/gear/buying_guide.htm.

- C2-042 (ISBN 0-7566-0946-1) Berger, K. (2005). *Backpacking & Hiking*. New York, NY: DK Publishing, Inc.
- C2-051 (ISBN 978-0-7153-2254-3) Bagshaw, C. (Ed.). (2006). *The Ultimate Hiking Skills Manual*. Cincinnati, OH: David & Charles.

TREKKING GEAR CARDS

Fanny Packs



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

Figure 13A-1 Fanny Pack

Characteristics

- Small and unobtrusive;
- Thin belt with pouch sewn on;
- Lightweight; and
- Maximum capacity should be 10 pounds.

Daypacks



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

Figure 13A-2 Daypacks

Characteristics

- Available in various models and sizes;
- May have extra features (loops, pockets, hydration system);
- Firm padding should be found on shoulder straps, waist belt and back padding; and
- Capacity from 15 to 35 L.

Boots



Internet Outdoors Unlimited, 2003, Alpina Trekking Boots, Copyright 2003 by Internet Outdoors Unlimited. Retrieved 17 April 2007, from <http://www.shopoutdoors.com/Alpinahikingboots.html>

Figure 13A-3 Hiking Boot

Characteristics

- Sturdy;
- Lightweight;
- Offers protection and support;
- Comfortable; and
- Correct size.

Water Carriers



ABC-of-Hiking, 2007, Shop Water Bottles, Copyright 2007 by Max Lifestyle.net "Go Mountain Biking like Max". Retrieved 17 April 2007, from <http://www.abc-of-mountainbiking/shopitems/water-bottles/unbottle7002-water-bottles.asp>

Figure 13A-4 Hydration System

Characteristics

- Available in various models and capacities;
- Lightweight and durable;
- Many forms, colours and materials; and
- Helps one to stay hydrated.

Socks



ABC-of-Hiking, 2007, Shop Hiking Socks, Copyright 2007 by Maxi Lifestyle.net "Go hiking like Max". Retrieved 17 April 2007, from <http://abc-of-hiking.com/shopitems/socks/trailsock-socks.asp>

Figure 13A-5 Sock

Characteristics

- Made from various materials;
- Absorbs moisture;
- Provides insulation; and
- Works better in pairs.

Rain Gear



ABC-of-Biking, 2007, Shop Outdoor Jackets, Copyright 2007, by Maxi Lifestyle.net "Go biking like Max". Retrieved 17 April 2007, from <http://www.abc-of-mountainbiking.com/shopitems/jackets/stanza-jackets.asp>

Figure 13A-6 Rain Jacket

Characteristics

- Available in various models, colours, sizes and shapes;
- Breathable fabric;
- Lightweight;
- Folds away;
- Should have a hood; and
- Waterproof.

Hats



ABC-of-Fishing, 2007, Shop Fishing Hats, Copyright 2007 by Maxi Lifestyle.net "Go Fishing like Max". Retrieved 17 April 2007, from <http://www.abc-of-fishing.net/shopitems/hats/voodoo-hats.asp>

Figure 13A-7 Hat

Characteristics

- Absorbs sweat;
- Available in various models, colours, sizes and shapes;
- Protects head and neck from the sun and rain; and
- Should have a wide brim.

Extra Insulation



ABC-of-Hiking, 2007, Shop Men's Sweatshirts, Copyright 2007 by Maxi Lifestyle.net "Go Hiking like Max". Retrieved 17 April 2007 from <http://www.abc-of-hiking.com/shopitems/sweatshirts/covertcardigan-mens-sweatshirts.asp>

Figure 13A-8 Fleece

Characteristics

- Available in various models, colours, sizes and shapes;
- Lightweight;
- Fast drying; and
- To be worn under a jacket.

Sunscreen and Insect Repellent



Forest Home Outfitters, 2007, Ooops I forgot. Retrieved 17 April 2007, from <http://foresthometoutfitters.org/index.php?cPath=37>

Figure 13A-9 Sunscreen and Insect Repellent

Characteristics

- Protects against exposure from the sun; and
- Wards off insects.

Camera and Film



WP ClipArt, 2007, Camera Section. Retrieved 18 April 2007 from <http://www.wpclipart.com/camera/index.html>

Figure 13A-10 Digital Camera

Characteristics

- Various sizes, models and colours;
- Records memorable moments; and
- Uses batteries.

Bathing Suit and Towel



Simply Swim, 2007, Arrow One Piece, Copyright 2007 by Hostshopping.co.uk. Retrieved 17 April 2007, from <http://cylinder-bag.hotshopping.co.uk/swimsuits.html>

Figure 13A-11 One-piece Bathing Suit



Morth Marine Austria, 2007, Cliff Swim Trunk, Copyright 2007 by Vorbehaltlich Tippfehler Zuletzt. Retrieved 17 April 2007, from <http://www.marine-moerth.com/Hellyhansen1.hmt>

Figure 13A-12 Bathing Suit

Characteristics

- Comfortable;
- As to fit the person; and
- Allows a person to go for a swim or wash.

Binoculars



ABC-of-Hiking, Shop Binoculars, Copyright 2007 by Maxi Lifestyle.net "Go Hiking like Max". Retrieved 17 April 2007, from <http://www.abc-of-hiking.com/shopitems/binoculars/echocompact-binoculars.asp>

Figure 13A-13 Binoculars

Characteristics

- Various sizes and models; and
- Views objects, routes and wildlife from a far distance.

WEATHER FORECAST SCENARIOS

Scenario A: Sunny Day

The last weekend in June, your cadet corps is going on a trek. The weather forecast for your region says it will be sunny throughout the weekend. What should you bring?

Clothing	Personal Items
<ul style="list-style-type: none"> • balaclava; • extra pair of pants, shirt and socks; • face mask; • gloves; • insulated pants; • jacket; • mittens; • neck gaiter; • pants; • parka; • parka hood; • fleece jacket; • raingear (jacket and pants); • scarf; • shirt; • shorts; • sweater; • tilley cap; • toque/cap; • turtleneck; • undershirt; • vest; and • windbreaker. 	<ul style="list-style-type: none"> • cookware and utensils; • extra food (energy bars, dried fruit or nuts, hard candies, etc.); • extra clothing (warm clothing and raingear); • first aid kit; • flashlight; • insect repellent; • lip balm; • money; • pen and paper (notebook); • personal hygiene kit; • personal medication; • pocket knife or multi-tool; • sunscreen and sunglasses; • a signalling device; • water container; • water filter; and • waterproof matches.

Scenario B: Rainy Day

During your fall navigation/trekking FTX, the Red Star cadets are going on a trek. For the weekend, the weather forecast says it might be windy and rainy. What should you bring?	
Clothing	Personal Items
<ul style="list-style-type: none"> • balaclava; • extra pair of pants, shirt and socks; • face mask; • gloves; • insulated pants; • jacket; • mittens; • neck gaiter; • pants; • parka; • parka hood; • fleece jacket; • raingear (jacket and pants); • scarf; • shirt; • shorts; • sweater; • tilley cap; • toque/cap; • turtleneck; • undershirt; • vest; and • windbreaker. 	<ul style="list-style-type: none"> • cookware and utensils; • extra food (energy bars, dried fruit or nuts, hard candies, etc.); • extra clothing (warm clothing and raingear); • first aid kit; • flashlight; • insect repellent; • lip balm; • money; • pen and paper (notebook); • personal hygiene kit; • personal medication; • pocket knife or multi-tool; • sunscreen and sunglasses; • a signalling device; • water container; • water filter; and • waterproof matches.

Scenario C: Cold and Snowy Day

During your winter adventure training activities FTX, the Red Star cadets are going on a trek. For the weekend, the weather forecast says it will snow and the temperature will be -25 degrees. What should you bring?

Clothing	Personal Items
<ul style="list-style-type: none"> • balaclava; • extra pair of pants, shirt and socks; • face mask; • gloves; • insulated pants; • jacket; • mittens; • neck gaiter; • pants; • parka; • parka hood; • fleece jacket; • raingear (jacket and pants); • scarf; • shirt; • shorts; • sweater; • tilley cap; • toque/cap; • turtleneck; • undershirt; • vest; and • windbreaker. 	<ul style="list-style-type: none"> • cookware and utensils; • extra food (energy bars, dried fruit or nuts, hard candies, etc.); • extra clothing (warm clothing and raingear); • first aid kit; • flashlight; • insect repellent; • lip balm; • money; • pen and paper (notebook); • personal hygiene kit; • personal medication; • pocket knife or multi-tool; • sunscreen and sunglasses; • a signalling device; • water container; • water filter; and • waterproof matches.

WEATHER FORECAST SCENARIOS – ANSWER KEY

Sunny Day Scenario	Rainy Day Scenario
<ul style="list-style-type: none"> • extra pair of pants, shirt and socks; • jacket; • pants; • fleece jacket; • raingear (jacket and pants); • shirt; • shorts; • sweater; • sweater; and • windbreaker. 	<ul style="list-style-type: none"> • extra pair of pants, shirt and socks; • <u>gloves</u>; • jacket; • pants; • fleece jacket; • raingear (jacket and pants); • <u>scarf</u>; • shirt; • sweater; • tilley cap; • <u>toque/cap</u>; • <u>turtleneck</u>; • undershirt; • <u>vest</u>; and • windbreaker.
<ul style="list-style-type: none"> • cookware and utensils; • extra food (energy bars, dried fruit or nuts, hard candies, etc.); • extra clothing (warm and including the raingear); • first aid kit; • flashlight; • insect repellent; • lip balm; • money; • pen and paper (notebook); • personal hygiene kit; • personal medication; • pocket knife or multi-tool; • sunscreen and sunglasses; • a signalling device; • water container; • water filter; and • waterproof matches. 	<ul style="list-style-type: none"> • cookware and utensils; • extra food (energy bars, dried fruit or nuts, hard candies, etc.); • extra clothing (warm and including the raingear); • first aid kit; • flashlight; • insect repellent; • lip balm; • money; • pen and paper (notebook); • personal hygiene kit; • personal medication; • pocket knife or multi-tool; • sunscreen and sunglasses; • a signalling device; • water container; • water filter; and • waterproof matches.
<p>* The items underlined are not mandatory but are acceptable.</p>	

Cold and Snowy Day Scenario

- | | |
|--|--|
| <ul style="list-style-type: none">• balaclava;• extra pair of pants, shirt and socks;• <u>face mask</u>;• gloves or mittens;• insulated pants;• jacket;• neck gaiter or scarf;• pants;• parka;• parka hood;• fleece jacket;• shirt;• sweater;• toque/cap;• turtleneck;• undershirt;• vest; and• <u>windbreaker</u>. | <ul style="list-style-type: none">• cookware and utensils;• extra food (energy bars, dried fruit or nuts, hard candies, etc.);• extra clothing (warm and including the raingear);• first aid kit;• flashlight;• insect repellent;• lip balm;• money;• pen and paper (notebook);• personal hygiene kit;• personal medication;• pocket knife or multi-tool;• sunscreen and sunglasses;• a signalling device;• water container;• water filter; and• waterproof matches. |
|--|--|

* The items underlined are not mandatory but are acceptable.

STRETCHES AND EXERCISES

EXERCISES TO BUILD BODY STRENGTH

Legs

Abductor Raise. Lie on the floor on the left side with the left leg slightly bent. Place the right hand in front for support. Keeping the right leg straight and in line with the body, raise it with a slow, controlled movement. Hold for one second, lower and then repeat. Repeat the exercises a minimum of 10 times on both sides.



Yahoo Health, 2007, Basic Muscle-conditioning Exercises, Copyright 2002 by Nucleus Communications Inc. Retrieved 29 March 2007, from <http://health.yahoo.com/topic/weightloss/overview/article/healthwise/popup/zm2427>

Figure 13D-1 Abductor Raise

Lunge. Keep hands on sides with shoulder-width apart. Step forward with one leg, bending both knees until the thigh is parallel with the knee. Push back to starting position. Alternate legs. Do not let back knee touch the ground. Repeat this exercise a minimum of 10 times on both sides.



Department of Public Health County of Los Angeles California, 2006, LAPublicHealth.org/Strength Training, Copyright 2006 by LADPH. Retrieved 27 March 2007, from <http://www.lapublichealth.org/physact/physactstrength.htm>

Figure 13D-2 Lunges With Weights

Glutes Raise. Hands in front shoulder-width apart. The back should stay straight. Keeping the right leg bent, raise it into the air. Press up into the heel. Count two seconds up and two seconds down. Repeat a minimum of 10 times on both sides.

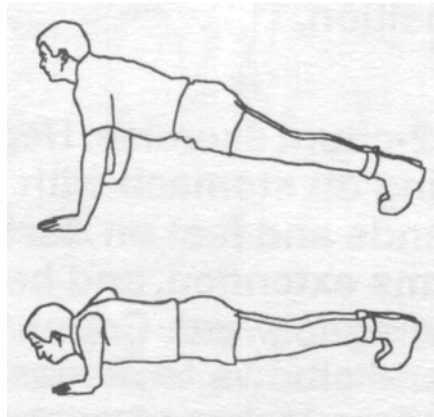


Bodybuilding.com, 2007, Exercise Guides-Glute Kickback, Copyright 2007 by Bodybuilding.com. Retrieved 29 March 2007, from <http://bodybuilding.com/fun/exercises.php?mainmuscle=glute>

Figure 13D-3 Glutes Raise

Arms

Pushups. Place hands directly under the shoulders, keeping fingers pointed forward and legs in line with the body. Lower the body toward the floor without touching it and then push off the floor to the start position. Do as many as you can.

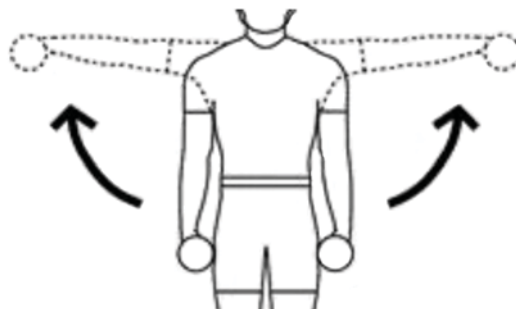


The Fitness Motivator.com, 2006, Add these Basic Exercises to your fitness plan. Retrieved on 29 March 2007, from <http://www.the-fitness-motivator.com/basicexercises.html>

Figure 13D-4 Push Up

Back and Shoulders

Lateral Raise With Weights. Hold weights at the sides, palms facing in. Slowly raise arms to shoulder level and lower. Keep arms and wrists straight. This exercise should be repeated a minimum of 10 times on both sides.

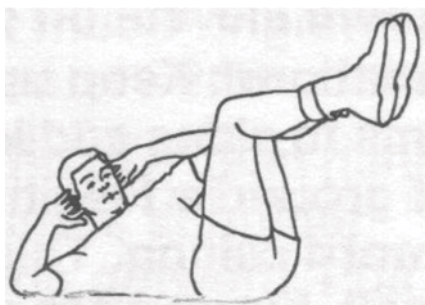


Weight Lifting Workout Routines, 2006, Shoulder Exercises, Copyright, 2006 by Weight Lifting Workout Routines. Retrieved 29 March 2007, from <http://www.weight-lifting-workout-routines.com/shoulder-exercises.html>

Figure 13D-5 Lateral Raises With Weights

Stomach

Crunches. Lie on the back bringing the legs up over the hips and cross the ankles. Place the arms either on the thighs, across the chest or beside the head (hardest). Slowly curl up using abs to lift shoulders from ground at the same time. Do not swing legs. Repeat a minimum of 10 times on both sides. The number of repetitions can increase with comfort level.

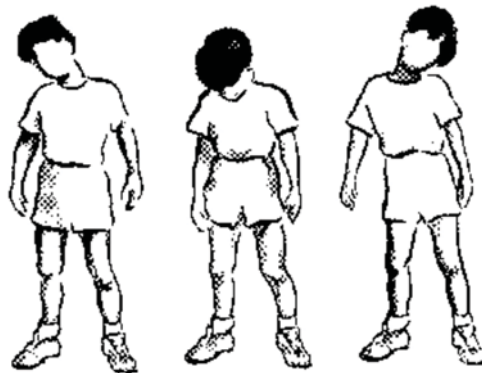


The Fitness Motivator.com, 2006, Add these Basic Exercises to Your Fitness Plan. Retrieved on 3 April 2007, from <http://www.the-fitness-motivator.com/basicexercises.html>

Figure 13D-6 Crunches Position

STRETCHING EXERCISES BEFORE AND DURING THE TREK

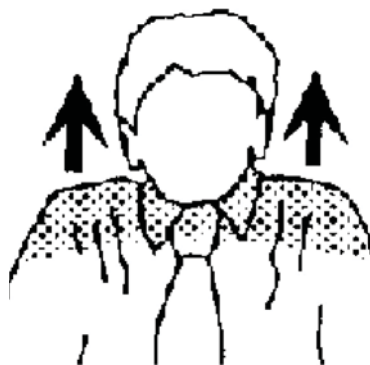
Neck. Slowly roll the head across the chest from shoulder to shoulder. Do not roll head backwards.



Moving on the Spot: A Collection of 5-Minute Stretch and Movement Sessions, by B. Hanson, 1999, Toronto, ON: Toronto Public Health. Retrieved 26 October 2006, from <http://www.lin.ca/resource/html/dn3.htm#1>

Figure 13D-7 Neck Stretch

Shoulders. Stand and raise the top of the shoulders toward the ears until a slight tension is felt in neck and shoulders. Hold for five seconds. Then relax shoulders downward. This exercise can be repeated several times.



University of Michigan Occupational Safety & Environmental Health, 2007, Basic Office Stretches, Copyright 2007 by The Regents of the University of Michigan. Retrieved 28 March 2007, from http://www.oseh.unmich.edu/ergonomics_intro.html

Figure 13D-8 Shoulders Stretch

Triceps and Top of Shoulders. Stand up and bring the right arm over the head, bent at the elbow. Use the left hand to gently pull the arm down. Hold this position for a minimum of 10 seconds. This exercise should be repeated a minimum of 10 times on both sides.



Smart Start: A Flexible Way to Get Fit. Retrieved 26 October 2006, from <http://www.in-motion.ca/walkingworkout/plan/flexibility/>

Figure 13D-9 Triceps Stretch

Shoulders, Arms and Chest. Interlace fingers behind the back. If this feels fairly easy, then lift the arms up behind the back until a stretch is felt in the arms, shoulders, or chest. Hold for 10 to 15 seconds. Keep chest and chin out.



University of Michigan Occupational Safety & Environmental Health, 2007, Basic Office Stretches, Copyright 2007 by The Regents of the University of Michigan. Retrieved 28 March 2007, from http://www.oseh.unmich.edu/ergonomics_intro.html

Figure 13D-10 Shoulders, Arms and Chest Stretch

Hamstrings, Back Knees and Legs. Stand with feet shoulder-width apart and pointed straight ahead. Slowly bend forward from the hips. Keep your knees slightly bent. Go to the point where a slight stretch is felt in the back of the legs. Hold for 10 to 15 seconds.



PC Coach, 2005, Stretching for Runners, Copyright 2005 by Biometrics Inc. Retrieved on 29 March 2007, from <http://www.pccoach.com/newsletters/may05/stretching.htm>

Figure 13D-11 Hamstring, Back Knees and Leg Stretch

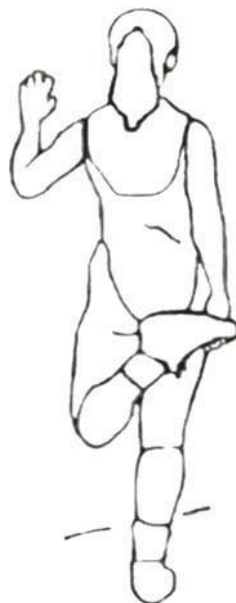
Front Hip and Lower Back Area. Start with one leg in front of the other, with the ankle of the front leg directly below the front knee. The other knee is resting on the ground. Place hands on top of each other on the thigh, just above the knee. Hold for 10 to 15 seconds and repeat for the other side.



ARC Committed to Curing Arthritis, 2007, Back Pain, Copyright 2007 for Arthritis Research Campaign. Retrieved 27 March 2007, from http://www.arc.org.uk/about_arth/booklets/6002/6002

Figure 13D-12 Stretch for Hip and Lower Back Area

Quads and Knees. Hold the top of the right foot with the left hand and gently pull the heel toward the buttocks. Hold for 10 to 15 seconds and repeat for the other leg.



Women's Heart Foundation, 2005, Stretching Exercises for Women, Copyright 2005 for Women's Heart Foundation. Retrieved 28 March 2007, from http://www.womensheart.org/content/exercises/stretching_exercises.asp

Figure 13D-13 Quads and Knees Stretch

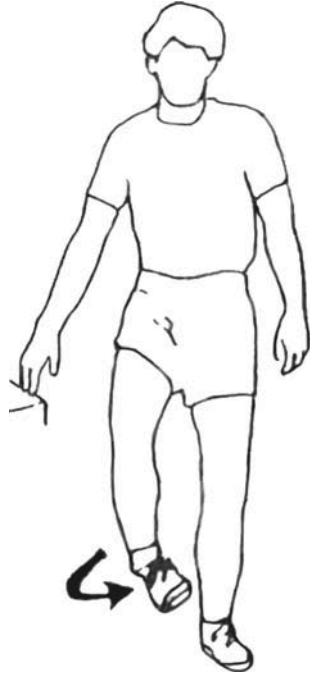
Squat. Squat down with feet flat and toes pointed out at 15 degrees. Heels should be apart depending on how flexible one is. Keep the knees to the outside of the shoulders, directly above the big toes. Hold for 15 to 30 seconds. Using a fence or pole for balance is acceptable.



The Back Rack, 1999, Cycling Stretches After Riding, Copyright 1999 by Stretching Inc. Retrieved 29 March 2007, from <http://thebikerack.com/page.cfm?pageId=247>

Figure 13D-14 Squat Position

Ankles. Lift the left foot off the ground and rotate the foot and ankle 10 to 15 times clockwise and then counterclockwise. Repeat for the right foot and ankle.



*Women's Heart Foundation, 2005, Stretching Exercises for Women, Copyright 2005 by Women's Heart Foundation.
Retrieved 28 March 2007, from http://www.womensheart.org/content/exercises/stretching_exercises.asp*

Figure 13D-15 Ankle Rotation