Pathfinder

Specialty

January 1996

Resource Material

\+ These activities have a campout component

1. Discuss the right type of clothing, including footwear, to wear on a hike.
2. Discuss the importance of keeping a log of your hikes. Set-up a log to use on your next hike.
3. Discuss and understand the following hiking techniques:
   - reaching your goal
   - lightweight walking
   - walking softly
   - pace
   - party size
   - private property

4.+ Demonstrate your understanding of topographical maps by explaining the following concept: Contour lines & Contour interval
   - Ground formations:- valley, ridge, spur, bluff or cliff, saddle, shoulder, escarpment, knoll, brow
   - Distance
   - Map scale
   - Grid reference system
   - Orienting the map

5. Other than clothing, discuss the essential equipment to taken on an overnight hike.
6.+ Understand the difference between a magnetic and true bearing, know when and how to use them. Demonstrate your ability to do a resection.
7. Be familiar with the hikers first aid for the following problems:
   - Hypothermia
   - Hyperthermia
   - Burns and scalds
   - Sprains
   - Blisters
   - Ticks
   - Leeches
   - Stinging tree and nettles

8. Determine the length of your stride and measure by pacing a distance of one kilometre. Discuss the rate of travel for different terrains.
9. Discuss the signs for assessing weather changes.
10. Know what to do when confronted with the following hiking hazards:
    - Bushfire
    - Water crossings
    - Electrical storms

11.+ Present a log book whch includes reports on flora, terrain, fauna, fatigue, food eaten, and approximate rate of hiking in kms per hour, and showing that you have completed a and b:
    - a. 10 km a day, 2 days in one week
    - b. 25 km hike
      (If 'c' is completed, you can qualify for the Hiking Honour)
    - c. 15 km a day, 2 days in one month

Bibliography

LAMBLE, TIM. ***Paddy Pallin's Bushwalking and camping.*** 1985 Eleventh Edition. Published by Paddy Pallin Pty. Ltd., Sydney.

LEMBIT, ROGER & NOBLE, DAVID. ***Bushwalking.*** Leisure Time series. 1984 Published by Taylor-Type Publications (Australia) Pty. Ltd.

McMANNERS, HUGH. ***The Complete Survival Manual.*** 1994 Published by Dorling Kindersly Ltd, London. Distributed in Australia by Beaut Books, Australia Pty. Ltd.

GRAVES, RICHARD. ***The 10 Bushcraft books. Book 9 Travel and Gear.*** Published by Dymock's Book Arcade Ltd., Sydney

Pathfinder Honour

Pathfinder who have successfully complete the Hiking Specialty may also be awarded the Pathfinder Hiking Honour.

ACTIVITY 1

Discuss the right type of clothing, including footwear, to wear on a hike.

OUTLINE

Ask the Pathfinders, (have them write down etc) what clothing they would take on a hike to meet the following conditions: good weather, cold weather, and wet weather. Also have them discuss any other miscellaneous clothing that they might take on a hike. Prepare yourself with examples of the correct types of clothing to wear on a hike as discussed in the information following. Brochures and pamphlets on suitable clothing are available from good camping stores. Some of these can be obtained and used to discuss current trends and practices.

RESOURCE MATERIAL

We rarely wear clothing appropriate to the natural conditions in which we live. Urban life accustoms us to wearing clothes for comfort and fashion, rather than for the maintenance of body temperature, by cocooning us from the environment with artificial heating and air conditioning. Even if we buy clothes specially prepared for the outdoors, they often owe more to current fashion then to practicality. You can spend a lot of money on "designer" gear - or you just buy the most essential items, and they will do the job even though they may not be in the latest colours.

For much Australian hiking, T-shirt and shorts are all that is necessary for day time wear. Hiking is an energetic activity and you do not need heavy clothing to keep warm in summer or winter. For most of our hiking, long trousers tend to drag on the knees adding to the burden on the leg muscles. The secret of lightweight hiking is to carry only what is really necessary. Heavy sets of clothing are rarely needed. Beginning hikers for too often burden themselves with excessive clothing. On the other hand, some beginners carry clothing totally unsuitable for certain types of weather.

CLOTHES FOR WARMTH. Wool or fibre pile is best. Cotton loses most of its insulation value when wet. Wool loses about 50% when wet, but becomes heavy. Fibre pile, which does not absorb water, loses less of its insulation than wool but is expensive and has poor wind resistance. Fibre pile, which is not unlike a synthetic fur and very comfortable to wear, is lighter than wool for a given amount of insulation.

Woollen singlets or T-shirts or, better still, synthetics such as chlorofibre make good underwear in cold conditions,.

One chlorofibre T-shirt and a fibre pile jacket would provide adequate insulation for most conditions encountered in Australia. A windproof "shell" worn outside completes the outfit.

The **layer principle** of hiking clothes, is simple. Use a number of light layers of close fitting clothing rather then a few layers of thick material. Finish off with a wind and waterproof outer cover when needed. As your temperature rises and falls the layers can be adjusted. A synthetic thermal singlet, a light wool shirt, a light woollen jumper and a japara parka combined with long woollen pants and nylon over pants will keep most active people warm in the worst blizzard. If more warmth is needed, an extra light jumper could be added.

All people lose a lot of heat from the head and face. A woollen beanie or balaclava is a useful addition. In cold winds mittens are good, although spear socks can be used quite successfully.

CLOTHES FOR KEEPING DRY. If you are on a long walk it can often be better (if time allows) to remain "stormbound" in your tent for a day if you wake up to bad weather. When a person becomes wet in windy conditions body heat will quickly be lost - increasing the risk of hypothermia (exposure). A parka is an essential piece of equipment that should always be carried. A light "spray jacket" is fairly wind proof, but will not keep out much rain. Waterproof three quarter length jacket with hood is best. There are many different materials used for parkas. Most of the types sold by bush walking shops are quite good.

One problem with waterproof parkas is condensation. Perspiration from the body can build up as moisture under a parka and lead to unpleasant feelings and damp clothing. If you stop moving, this condensation can quickly chill the body. Some hikers use a chlorofibre garment under the parka to "soak up the sweat" leaving the body feeling more comfortable. The chlorofibre garment will dry out very quickly.

Nylon parkas are tough and light weight, suffer badly from condensation but are very wind proof. Oiled japara jackets are pleasant to wear but are not as wind proof or water proof as nylon jackets. Nylon jackets usually keep their proofing longer than japara jackets. Both sorts can be reproofed with substances such as 'sno seal'. New japara jackets often shrink; sleeves can be a problem. Laminated nylon jackets made from materials such as goretex or klimate have microporous layer designed to keep water droplets out but let water vapour from perspiration pass through to the outside. These are heavier and more expensive than conventional sealed nylon jackets but do not suffer as much from condensation. If the laminate become dirty, these jackets can leak.

When buying a parka also consider the shape of the hood. The position of the seams can be important (seams over the shoulders often leak). Waist draw strings can prevent flapping in the wind. Elastic cuffs are probably better then "velcro" tightened cuffs which often come undone in scrub.

In wet weather it may be unwise to wear long trousers. They drag on the knees and cool the legs. Light weight nylon over pants are, however, very useful. They fold away to almost nothing and offer good protection from that sudden blizzard or hail storm.

PROTECTION FROM SCRUB. For most hikes, particularly those along tracks, no special clothing is needed. however, many hikers like to leave the track and navigate cross country. Long pants are very hot to walk in and most hikers prefer to stay in shorts and put up with a few scratches.

If the vegetation is very thick or prickly then suitable 'armour' can be a good idea. This can consist of gardening gloves, a long sleeved shirt and long pants.

MISCELLANEOUS CLOTHING. A hat is essential when walking under the harsh sun. Wide brimmed felt hats are best. A cord can be improvised to keep them on in windy conditions. They not only shade the face but also keep the rain off.

Gaiters can provide protection for the lower leg in both scrub and bad weather. The use of gaiters and scrub gloves can provide more protection against scrub than long pants and can be comfortable in hot weather. In bad weather the combination of a parka and gaiters means that only a few centimetres of the legs are exposed to wind.

FOOTWEAR. Footwear for hiking should, most importantly, be comfortable for walking in. It is for this reason that boots are now considered largely unsuitable for serious hiking - the sneaker has largely replaced them. Sneakers have the advantage of being cheaper, more comfortable, better for creek walking, easier to break in, and also a lot lighter than boots. Sneaker walkers seem to be able to keep that light spring in their step a lot longer than those clad in heavier footwear. Those wearing sneakers also seem to place their feet on the ground more carefully than boot wearers, leaving a lesser impact on the environment.

It is important that the sneakers used for hiking be of good quality. Cheap gym boots can disintegrate in one weekend. The sneaker needs to be well made, with a good sole and have a reasonable grip on wet rock.

Boots offer an advantage only when snow walking is planned. If caught out in sneakers in a snowstorm then plastic bags can be worn inside the sneakers to act as a vapour barrier.

Socks cushion your feet and help prevent blisters. Thick woollen socks are essential and they should be free of darns. Some people wear two pairs of woollen socks together, while others substitute nylon for the outer pair. The so-called 'cushion socks' are very kind to softer feet.

Always carry at least a change of socks and rotate them during the trip. Don't hesitate to wash socks during the trip so that they can be reused. Washing removes grit and revitalises the socks cushioning. Its a good idea to wash your feet at lunchtime, replacing the socks from one foot onto the other. This will even out the matting down of the sock as you walk on it and gives the walker a greater amount of cushioning out of a pair of socks.

HIKING

Hand-out sheet 1.

Hiking Clothes

Shorts
T-shirt/shirt
sneakers
two pair socks
hat

For cold weather add

thermal singlet
light woollen jumper
parka

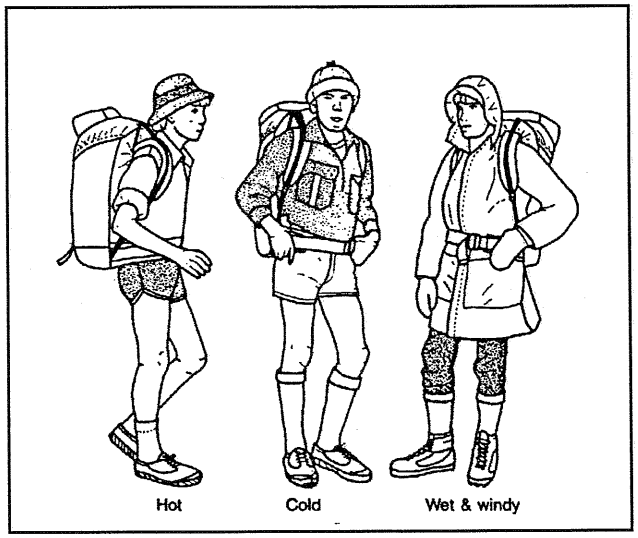
(these can be adjusted as your temperature rises and falls)

For wet and windy weather add

long pants
light weight spray jacket

Miscellaneous clothes

gaiters
gloves



ACTIVITY 2

Discuss the importance of keeping a log of your hikes. Set-up a log to use on your next hike.

OUTLINE

Discuss the three sections of a log as outlined in the following resource material. Present to the Pathfinders a log book to be used on their next hike. Have the Pathfinders complete as far as possible, the prelog section of the log. It is a good idea for the club to develop a standard format for the log to be used on all their camps and hikes. An example of a log is found in the resource material.

RESOURCE MATERIAL

A log is a personal written record of the information about a camp, expedition or hike. The log contains detailed information about routes, equipment, camp sites, distances, terrain, scenery, etc. and any personal remarks that the writer would like to make that they consider would be helpful for themselves or for others in the future. The log is a small booklet of 10 to 15 pages that can easily be tucked away in a pack or day pack.

The log consists of three main sections. The pre-log, 'diary' and post-log.
The pre-log and the post-log are used to help the camper better prepare for the current camp and for camps in the future. The diary section of the log is a running commentary as the camp is in progress and several times a day should be allocated during the camp for completing this section.

Pre-log. The pre-log is completed by the camper before the camp or hike starts and is generally of standard format for all camps and should contain the following information:

- Camp leader
- Name of all the campers in the group
- Map name and number, or numbers, to be used on the camp
- Personal list of all equipment taken
- Copy of personal food menu for the camp
- List of all the weights of the food and equipment taken on the camp
- Basic outline of the camp program

Diary. The 'diary' section of the log is the part completed during the actual camp and is the most comprehensive part of the log, and should contain all the personal information and impressions of the writer. In this section the writer should include such information as grid references for all camp sites, detailed information about the routes travelled, distances between rest stops, giving grid locations for the rest locations, information about the terrain between rest stops, the time between rest stops, etc.

As mentioned the 'diary' section of the log should also contain any impressions or feelings that the writer might have about the particular section of the camp they are writing. They may wish to include personal difficulties they had with parts of the route or parts of the route they found easy. Difficulties with equipment taken, or equipment they wish they had taken. It can also contain information about the flora and fauna observed.

Post-log. The post log is probably the most neglected part of the log but it is just as important as the other two sections. The post-log is the summing up of the camp and is completed when the camp is over. In this part of the log the writer makes recommendations to him/herself to help him/herself with any future camp. In this section the writer might make the following types of comments; 'Really needed an extra pair of socks, must take them next time'; or 'Took 24 weet-bix, but brought 20 of them back home, need to cut down next time'; or 'Carried that axe with me all week-end, didn't use it once - can stay home next time'.

CAMP LOG

PRE-LOG

Camp Location _____

_____

Map Name _____

Map Number _____

Description on how to get there:

_____

_____

_____

_____

My Name _____

PRE-LOG

Camp Leader _____

Names of other campers:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

PRE-LOG

Menu Day 1
Breakfast _____

_____

Lunch _____

_____

Tea _____

_____

Menu Day 2
Breakfast _____

_____

Lunch _____

_____

Tea _____

_____

PRE-LOG

Menu Day 3
Breakfast

Lunch

Tea

Menu Day 4
Breakfast

Lunch

Tea

PRE-LOG

Food List

Item	Weight

PRE-LOG

Equipment List

Item	Weight

PRE-LOG

Program outline day 1

Program outline day 2

PRE-LOG

Program outline day 3

Program outline day 4

DIARY -Day 1

DIARY -Day 2

DIARY -Day 3

DIARY -Day 4

POST-LOG

Overall impression of the camp

Equipment recommendations

POST-LOG

Food recommendations

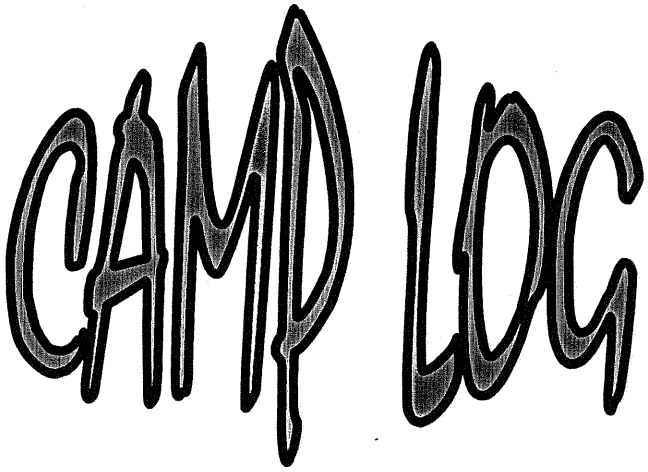
Personal assessment

POST-LOG

Observations and Comments

HIKING

Hand-out sheet 2.



Consists of three sections:

PRE-LOG

Information required before you go

DIARY

Thoughts and impressions during camp

POST-LOG

Assessment and recommendations

ACTIVITY 3

Discuss and understand the following hiking techniques:

reaching your goal
lightweight walking
walking softly
pace
party size
private property

OUTLINE

With the aid of hand-out sheet 3, discuss the technique of reaching your goal. While doing this bring up the other hiking techniques.

RESOURCE MATERIAL

REACHING YOUR GOAL

A weeks walk is broken into days and the days into sections which have definable goals. If the goal is easily achieved and can be positively identified there is no problem. Reaching the summit of Mt. Jagungal from O'Keefes Hut (see hand-out sheet 3) is one such case. But if you want to reach Mawsins Hut from the summit, the problem is to find a hidden feature over a distance of eight kilometres.

At the outset your route should be designed to get you, not precisely to the goal, but to the locality of the goal. Here are some valuable methods which avoid navigating accurately over a longish distance, but in the end produce a more certain result. The four examples that now follow refer to hand-out sheet 3.

Attack points. Choose an attack point, a feature near the goal that is more easily found, and from it approach the goal accurately. In the example, reach The Cup and Saucer Hill and from there a compass bearing will take you to the hut.

Catching features. But what if you miss your goal? Some insurance against such a mishap might be worthwhile. Mawsons Hut is at the foot of the Kerries, and if you find yourself climbing significantly, you have overshot the goal. The Kerries are thus called a catching feature. A check list of features (usually land features) along your route to the attack point and goal should be observed.

Aiming off. If your goal is close to a linear feature (track, road, spur, river etc.) another method may suit. For example, you want to reach Valentines Hut from the Kerries. Don't aim for the hut, but purposefully aim off from the direct bearing, to reach the Valentine River upstream from the hut. Upon reaching the river there is no question that a left turn is required.

Handrails. The linear features mentioned above can also be called handrails, since they can guide you over a long distance. Following the Valentine River from Mawsons Hut to Valentines Hut is an obvious example. Less obvious may be the Great Dividing Range which acts as a handrail for many kilometres on the route from The Big Brassy to Cesjacks

Hut.

LIGHTWEIGHT WALKING

To obtain the maximum enjoyment from hiking it is necessary to go lightweight. Packs and footwear should be as light as possible. To learn what gear *not* to take is probably more important than learning what gear to take.

Experienced walkers can survive comfortably with very small packs on a long trip.

A heavy pack can turn a hike into a long hard slog. If you are carrying a lot more weight than your companions, you may be responsible for slowing the whole party. For difficult terrain, such as boulder hopping in a slippery creek bed or rock scrambling, a light pack is essential.

Lightweight footwear, such as sandshoes, is also important. Every gram carried on your feet is equivalent to many times that carried on the back.

A lightweight walker should be able to stride along keeping up a good rhythm, covering distance quickly if necessary. A heavily burdened walker will plod along slowly, needing frequent rests.

WALKING SOFTLY

Careful walkers, while looking at the views and the surrounding bush, also unconsciously watch the ground. They walk softly trying to avoid unduly disturbing soil, rocks and little plants - for dislodging rocks can be the start of erosion in the next heavy rain, and the death of many little creatures living in that special environment underneath the rocks. The impact of walkers in an alpine environment is usually much more severe than in rugged lowland country, but in both environments a gentle attitude to the earth remains constant.

PACE

The idea of rhythm is important to hiking. It is better to walk at a stead pace rather than in short fast bursts interspersed by long rests. It is common practice to break the days walking into intervals of about one hour, each with a five or ten minute rest. A drink and a snack is also often taken then. Lunch time is usually more prolonged, say half to one hour long. Apart from eating, this is a time for the feet to rest. Where possible remove shoes, allow the feet to cool and possibly change socks. Careful attention to the feet is the best way of avoiding blisters.

The speed of walking should always be that of the slowest member. Remember that the slowest person is almost certainly not so by choice. The best place for a slow walker is at the head of the line, so that the pace is automatically set. At the same time, the slow person is relieved of the psychological burden of dragging along at the end.

Generally speaking the party should always stay together, and definitely well within sight. Obstructions like creeks, fallen trees and passes through rocks also produce a delay. This delay accumulates along the line so that those at the end of the line find themselves having to walk very fast to catch up. In these instances the leader should slow down or stop until everyone is through. When walking in a line, keep your place, don't push to the front. If you are in scrub, adjust your distance from the next person to avoid the backwash of

whipping branches.

PARTY SIZE

Probably the optimum party size is four persons. Larger parties tend to spread out and stragglers can get lost. Small parties make less demand on the environment, use less firewood, and need smaller campsites. The occasional trip with a large party, however, can, if properly organised, work out with the mix of a wide range of backgrounds, interests and personalities. Parties larger than twenty walkers should be avoided.

What is the smallest party size? Some maintain that for safety no party should be less than three people. If an accident occurs to one member, one can go for help while the other stays with the victim. Many hiking parties, however, consist of only two walkers. Solo walking should never be considered lightly. If a mishap occurs, then you will place considerable strain on worried relatives and rescue authorities.

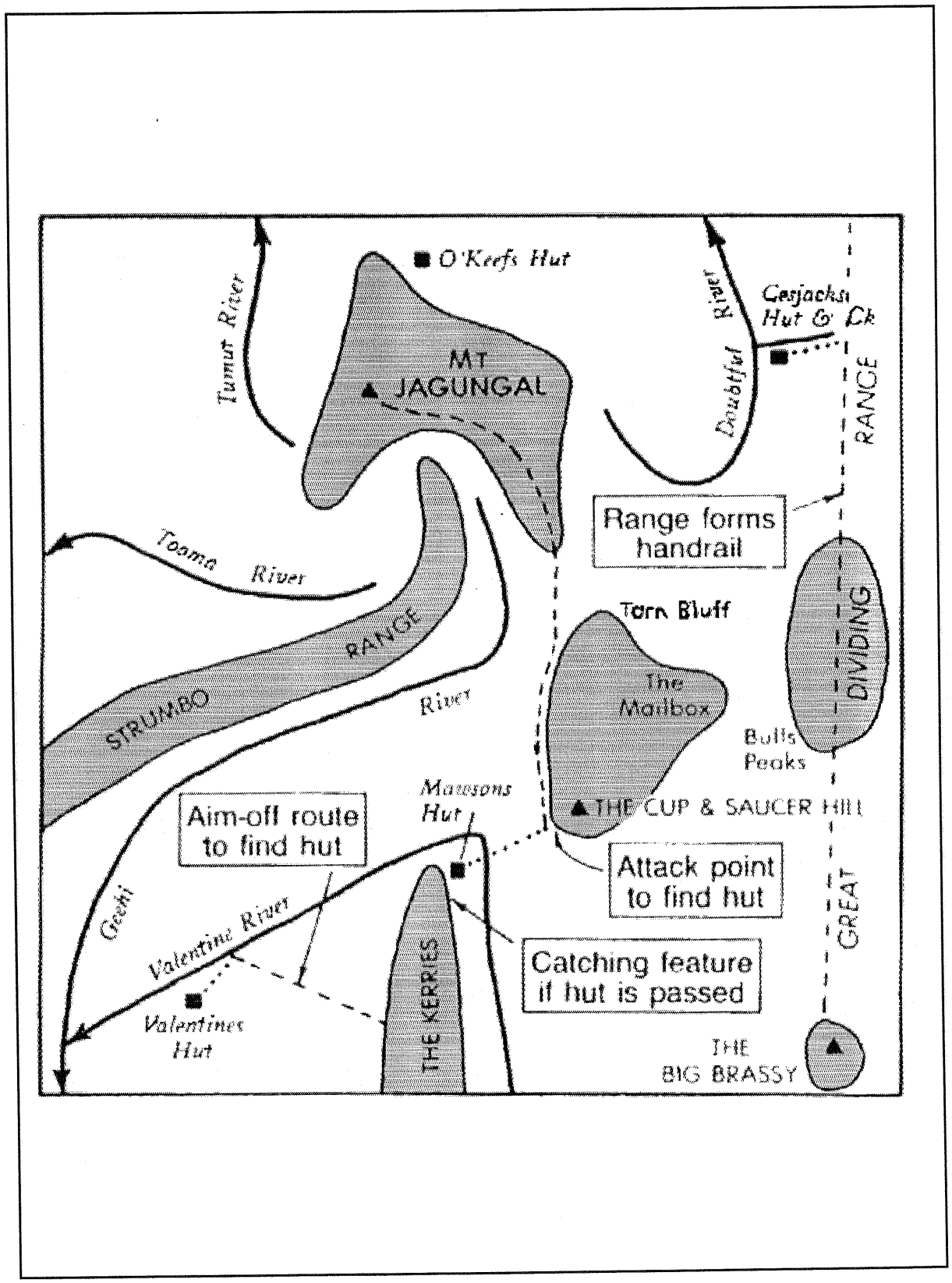
PRIVATE PROPERTY

To get to some hiking areas it is necessary to pass through private property. Make sure permission is obtained from the land holder. Most farmers like to know who is travelling across their land and are usually co-operative. Don't be discouraged by 'trespassers prosecuted' signs at the gate. Approach the farmer and he will often tell you that only shooters are unwelcome.

Rather than antagonising farmers who refuse permission to travel along what may be a legal right of way, it is often preferable to walk around the perimeter of the farm in order to avoid trouble.

HIKING

Hand-out sheet 3.



ACTIVITY 4

Demonstrate your understanding of topographical maps by explaining the following concept:

Contour lines & Contour interval
Ground formations:- valley, ridge, spur, bluff or cliff, saddle, shoulder, escarpment, knoll, brow
Distance
Map scale
Grid reference system
Orienting the map

OUTLINE

This activity has a camp out component therefore the Pathfinders will have the opportunity to put into practice the skills they have obtained. Discuss the information following using the provided handout sheets. Relate this information to actual topographic maps.

RESOURCE MATERIAL

CONTOUR LINES AND CONTOUR INTERVALS

Contour lines are lines drawn on the map (usually in brown), that pass through all points that are the same height (elevation) above sea level. Hills, valleys etc. are 'described' on the map by the shape of the contour lines. If contour lines are widely spaced, the slope of the land form is gentle; if closely spaced, the slope is steep; and when the lines coincide, the drop is vertical. Patterns of contour lines can be easily recognised for the principle land formations. Some contour lines on the map have a number attached. This number is the height of the contour, in metres above sea level. On hand out sheet 4, the top diagram gives a diagrammatic representation of how contour lines represent land formations. Note the numbers on the contour lines increase as they approach the summit of the hill.

The vertical height between two contour lines is the contour interval. Thus, if you climb (or descend a hill from one contour line on the map to the next, you have moved vertically a distance that is equal to the contour interval. The contour interval is specified on each map and is found in the legend. It may also be calculated from the contour elevations that are written on the map.

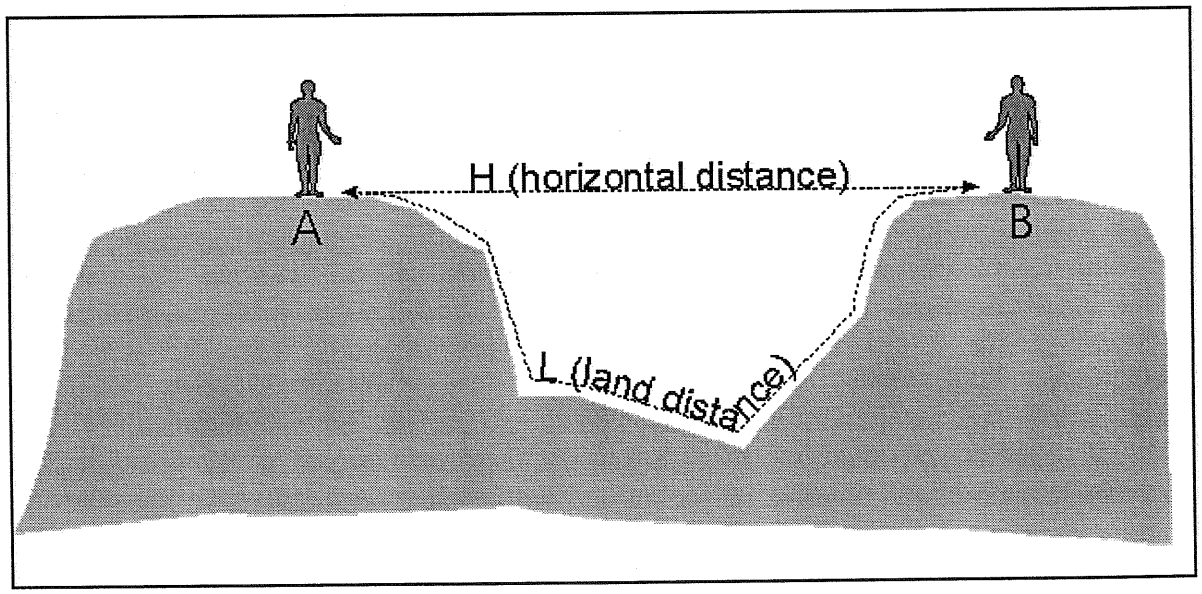
GROUND FORMATIONS

The 9 land formations found on handout sheet 6, are extracts from the contour map found on handout sheet 5. Use the extracts on handout sheet 6 and the following descriptions to examine the contour line shapes for the 9 land formations. Try and identify the land formation on handout sheet 5.

1. Valley - a depression between two hills, spurs, ridges or mountains. (*There are 6 major valleys and several minor valleys on handout sheet 5*)

2. Ridge - a long, narrow strip of highland, with a change in elevation no greater than one contour interval. (*There are at least four ridges on handout sheet 5*)
3. Spur - a narrow strip of land with decreasing contour line elevations, usually running from the end of a ridge down into a valley. (*There are 13 spurs on handout sheet 5*)
4. Bluff or Cliff - a broad, precipitous ending of a spur or ridge or headland, overlooking a valley or sea coast. (*There is 1 bluff and 1 cliff on handout sheet 5*)
5. Saddle - a depression between two peaks. (*There are 3 saddles on handout sheet 5*)
6. Shoulder - a broad flattened piece of land with steeper slopes above and below. (*There are 2 shoulders on handout sheet 5*)
7. Escarpment - a ridge with a steep slope on one side and a gentler slope on the other. (*there are two escarpments on handout sheet 5*)
8. Knoll - a small detached hill. May be an outcrop on a ridge or spur etc. (*There are 4 knolls on handout sheet 5*)
9. Brow The top of a steep slope before the summit is reached.

On the second diagram on handout sheet 4, there are two circular contour lines on the ridge that passes across the diagram. Ask the Pathfinders to try and identify this land formation. Without any contour elevations marked, these contour lines could represent a knoll two contour intervals high, ie 100 m, or a depression of two contour intervals.



MAP DISTANCE

The distance between two points on a map, expressed in metres or kilometres, is a horizontal distance (or as the crow flies distance) and is not always a very accurate estimate of the amount of land (land distance) that has to be covered between the two points. The more undulating/hilly/mountainous the country, the greater the difference between the horizontal and land distances. The land distance can be estimated using the following equation:

$$L = H + (C \times N)$$

where L = land distance between points A & B
H = horizontal distance between points A & B
C = contour interval of the map
N = number of contour lines crossed between points A & B

MAP SCALE

The scale is the relationship of the horizontal distance between two points on the map and the horizontal distance between the same two points on the ground. Scale may be represented on a map in one or more of three ways: by a ratio or fraction - 1:25,000 means that every distance on the map is 1/25,000 of the distance on the ground; by a linear scale drawn on the map which is usually found at the bottom of the map; and by a written statement, ie, so many centimetres to the kilometre.

GRID REFERENCE SYSTEM

The Australian map grid is a system of lines drawn over maps of the whole of Australia and is related to latitude and longitude. The lines are 1,000 metres apart in accordance with the scale of the map. The grid is used to identify points on the map, somewhat like a car map, except six figure numbers are used. Details of how to use references are given on most maps that have the system. All hikers should be able to use the grid reference system. The north-south grid lines on the map are called "EASTINGS" (because the grid numbers on the top of the map increase as they move towards the east). The east-west grid lines on the map are called "NORTHINGS" (because the grid numbers on the side of the map increase as they move north).

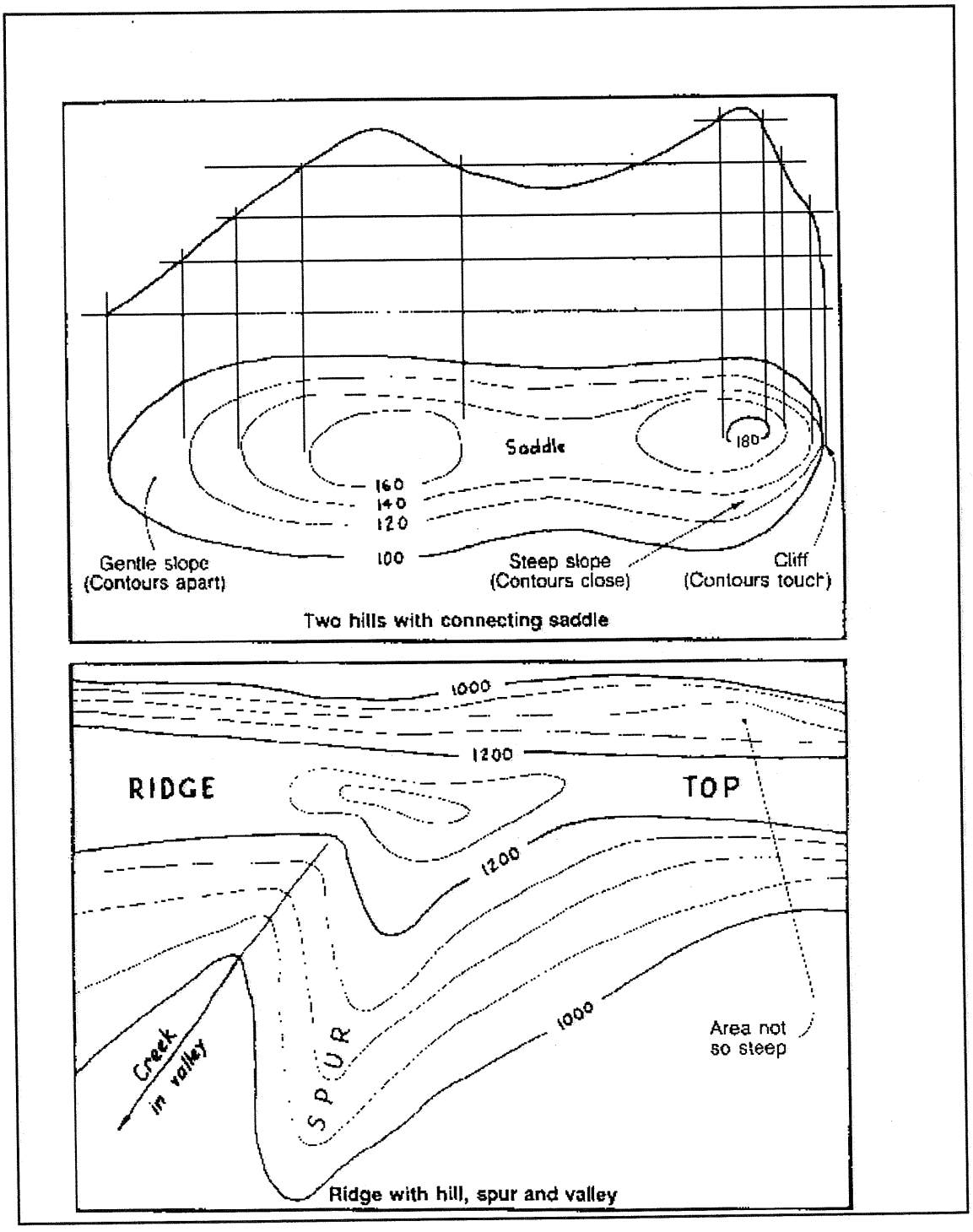
Grid numbers are a two digit number found at the end of the grid lines. However, a grid reference must contain 6 numbers, 3 from the eastings and 3 from the northings. The third digit is the approximate distance in 1/10's between the two nearest grid lines. The general rule in giving grid references is to give the Eastings first and then the Northings. eg. You are located 3/10's of the way between the 56 and 57 easting grid lines and 7/10's between the 71 and 72 northing lines. The grid reference for your location would be 563717.

ORIENTING THE MAP

Before you do any navigation with a map, you should perform the simple task of orienting the map. That is you rotate the map so that the north on the map points to north. This correctly juxtaposes the features on the ground with their representative on the map. For example: you are standing on a mountain top and you see a river junction on the left of your position on the map - if you now look to your left you should see the junction. The best way to orient a map is with a compass. This procedure is outlines on handout sheet 7.

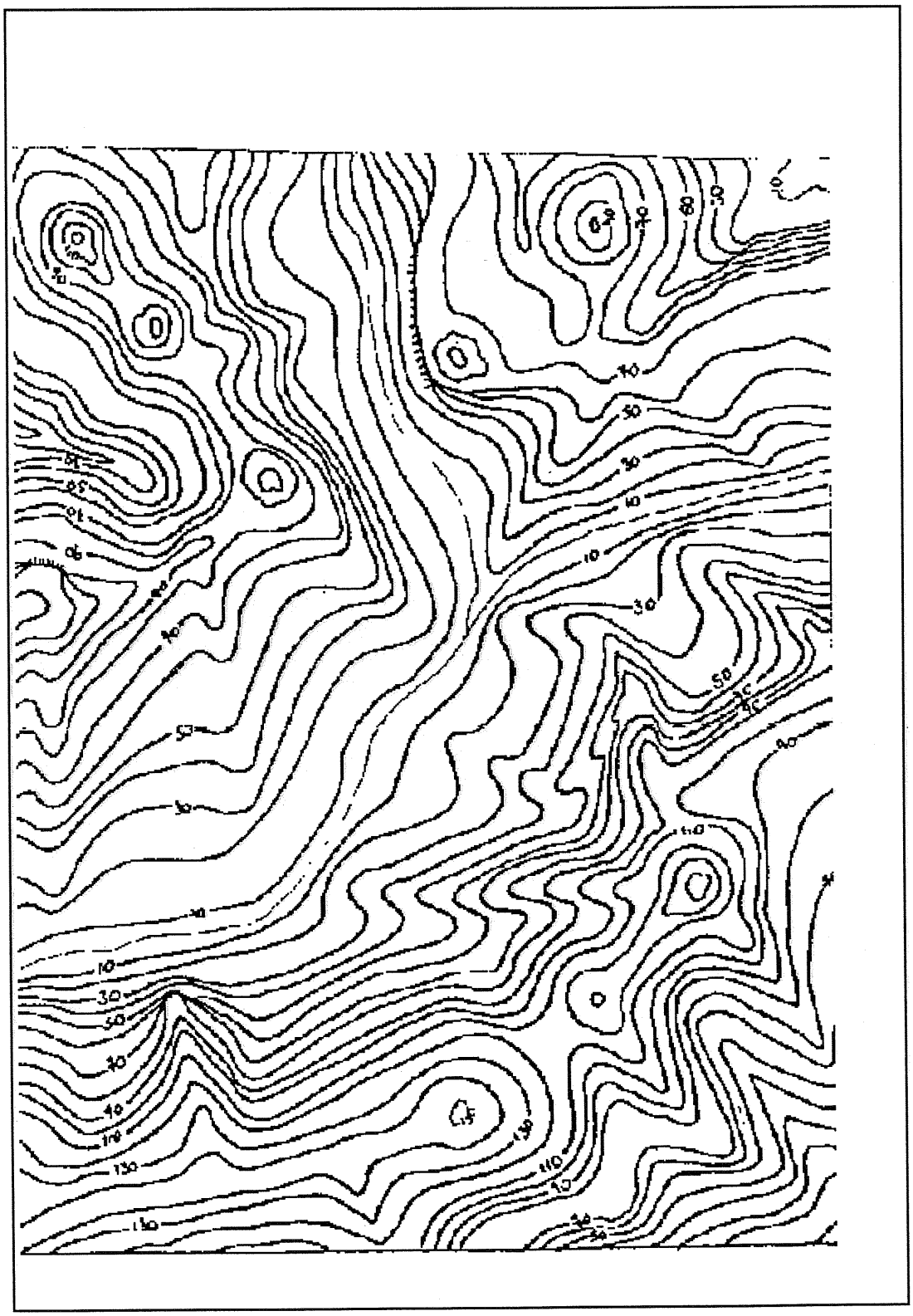
HIKING

Hand-out sheet 4.



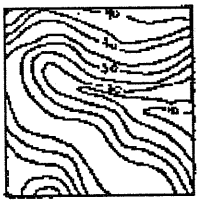
HIKING

Hand-out sheet 5.

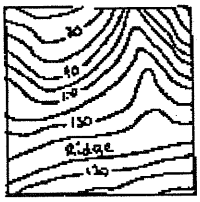


HIKING

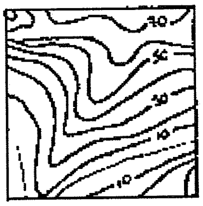
Hand-out sheet 6.



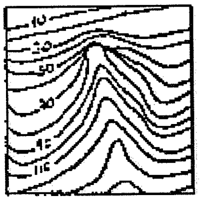
1. Valley



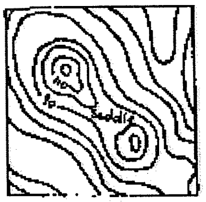
2. Ridge



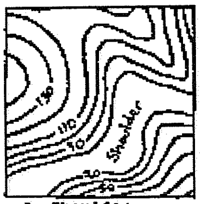
3. Spur



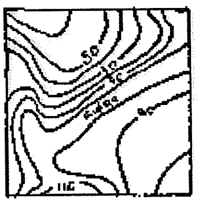
4. Bluff or Cliff



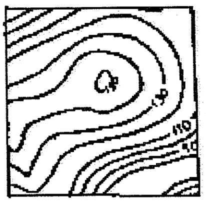
5. Saddle



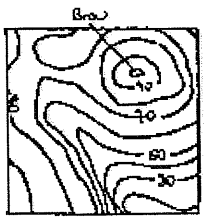
6. Shoulder



7. Escarpment



8. Knoll



9. Brow

HIKING

Hand-out sheet 7.

Orienting a map

1. Find the north arrow diagram on the map and read off the G-MA

2. Set your compass dial to the G-MA so that the compass replicates the diagram

3. Leaving the compass set, place it anywhere on the map with the long edge along one of the grid lines and with the travel arrow pointing to grid north. Ignore the compass needle.

4. Without moving the compass, rotate the map with the compass until the north end of the compass needle aligns over the orienting arrow.

ACTIVITY 5

Other than clothing, discuss the essential equipment to taken on an overnight hike.

OUTLINE

Present to the Pathfinders a pack containing the items listed in the resource section. Discuss the importance of light weight and the necessity for having items that can have more than one use. Expand on the idea that light weight is best learned by weighing all items as referred to in the log book as outlined in activity two. Brochures and pamphlets on suitable camp equipment are available from good camping stores. Some of these can be obtained and used to discuss current trends and practices.

RESOURCE MATERIAL

Camping equipment is really one of personal choice. One person may prefer to sleep under a tent fly while another may choose to carry a hikers tent. The advantages and disadvantages of each can only be determined through experience. The information following tries to cover the equipment that is '*essential*' allowing the individual hiker the freedom of personal choice.

It does not matter whether or not the camp that you are preparing for is a stationary camp or a hiking camp, equipment must be taken from seven categories, these categories are call the seven "somethings" of camp equipment:

something for wearing
something for sleeping
something for eating
something for God
something for safety
something for hygiene
something to carry it all in

SOMETHING FOR WEARING
This topic has been discussed in activity one.

SOMETHING FOR SLEEPING
To get a good nights sleep is desirable if one is going to be rested and ready for more hiking the next day. The following equipment needs to be considered when thinking about sleeping equipment:

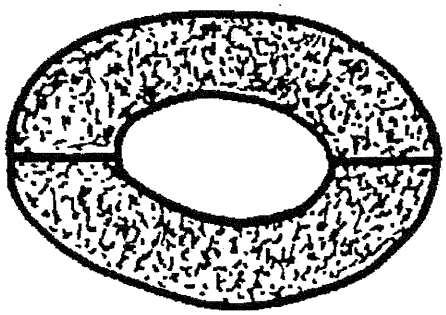
sleeping bag
bag cover
inner sheet
pillow
sleeping mat
fly and ground sheet or tent

A sleeping bag is a most important piece of hiking equipment. Sleeping bags suitable for hiking can be very expensive. Down filled bags are probably best for Australian\New Zealand conditions however lose warming ability when wet. Recently developed synthetic fillings are close to down in insulation ability and are much better when wet, but may be too bulky to pack. It should be noted that a sleeping bag does not produce heat but only retains heat generated by the body. When selecting a sleeping bag check the bags features for retaining heat. Such things as a hood, draw strings on hood and neck, draft flap on zipper, the type of quilting and bag shape etc. Quilting is the system of sowing the outer lining of the bag to the inner lining of the bag. Quilting also determines the amount of movement the filling has. Variations on 'box quilting' are the warmest. Close fitting bags usually are the warmest as there is less air inside the bag that the body has to warm, however, some people find these bags very restrictive and uncomfortable to sleep in. Mummy/tulip shaped bags with hoods are the most efficient designs for both warmth and weight.

Sewn-through stitching - cheap and light

box wall

Slant wall, which gives more loft

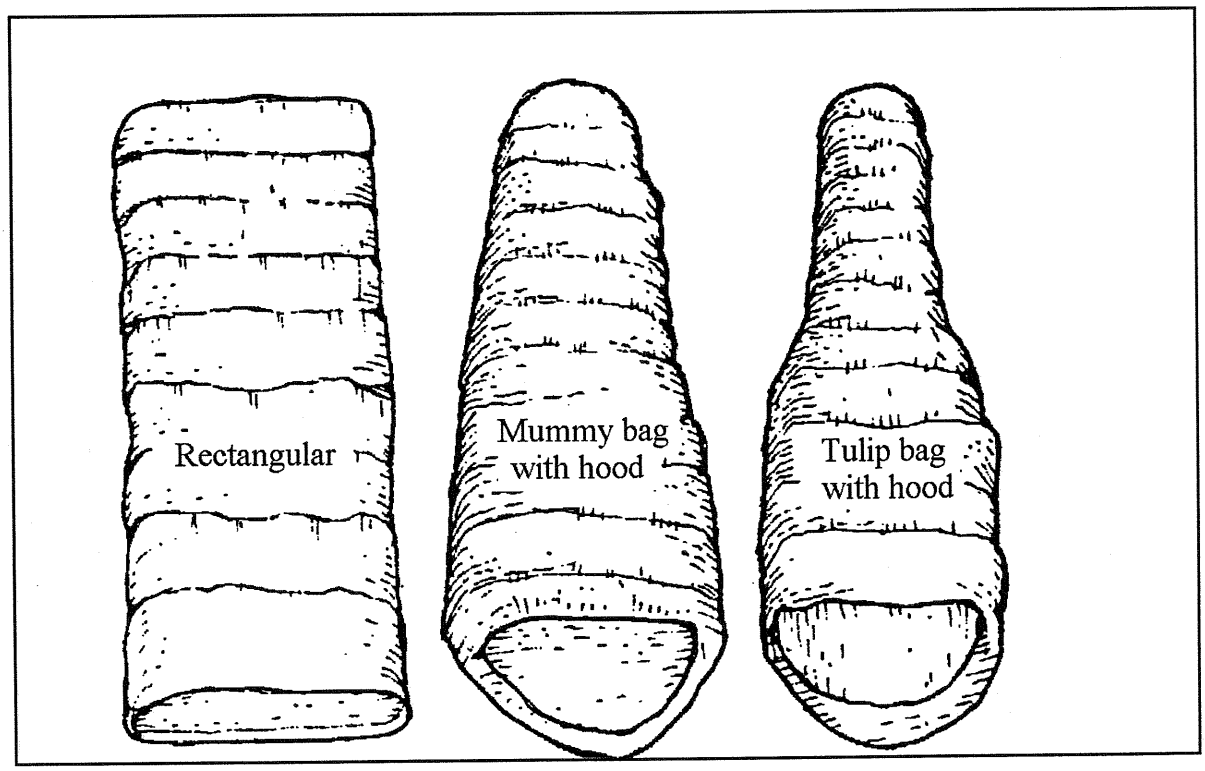


V tube, heavier but reduces movement of the down

The baffles at the sides prevent the down from going to the bottom

To prolong the life of your bag a bag cover made from synthetic microporous material will protect you bag from the weather. Also, a cotton inner sheet for the bag will help to keep the inside of the bag clean. Inner sheets also add to the warmth, (this can be good and bad) or can be use without the bag on warn nights. The items are not essential.

Pillows are not normally carried when hiking. Most hikers use bundled up clothing for a pillow however if more comfort is desired, light weight inflatable pillows can be purchased from most



camping store. Inflatable pillows should be used outside the sleeping bag as the air in the pillows takes a lot of body warmth to warm up.

Sealed cell or ensolite sleeping mats have become very popular. They act as good insulation under your sleeping bag. They also give some measure of comfort when sleeping on hard ground. Although they are light they are very bulky. Although good a sleeping mat is by no means indispensable. A cut down sleeping mat to half or two thirds body length is less bulky. Self-inflating foam mats are much more expensive and heavier but are more comfortable. Air beds are much to heavy to consider carrying on a hike.

During fine, settled weather, many hikers prefer to sleep out under the stars. It is a good feeling to go on a week-long walk and not have to put up a tent or fly once. However it's hard, even for the weather people to predict accurately the weather conditions over a 24 hour period let a lone for a week. Therefore some form of shelter is essential for hiking. A nylon fly is lightweight, compact to pack, very cheap and useful in many different situations. Flys can be pitched on different ground conditions and for different wind situations. For those who like to sleep out under the stars the fly can be used as a light sleeping bag cover for due and frost. When using a fly as shelter a full length ground sheet under your carry mat helps keeps your mat and bag dry from ground condensation, as well as clean.

Tents come in a wide range of styles. All good tents are expensive and before buying a tent one should consider many factors carefully. The final choice will also be a compromise because a tent will perform differently in various conditions. When considering a tent for hiking, you need to consider the following: how water proof is the tent? - how wind proof? - ease of erecting? - does it have a built in floor? - can it be pitched on a poor, undulating campsite? - is there room enough for storing my gear and cooking in bad weather? - how

heavy is it? Single layer tents suffer badly from condensation. Double layer tents overcome this problem by having an outer proofed layer of nylon and an inner breathable layer, usually sewn to a waterproof floor. Not all varieties of this tent are waterproof. Once water gets onto the sewn-in floor it can be difficult to get out.

SOMETHING FOR EATING

The following equipment needs to be considered when thinking about eating on a hike:

- food
- billy
- fry pan
- plate/bowl
- knife/fork/spoon
- mug
- pot scourer
- detergent
- rubbish bag
- stove

The aim for food selection for hiking should be to provide satisfying and well balanced meals with a minimum of weight. The length and severity of the trip will determine the extent to which these aims will be sacrificed for personal preferences. On day trips only a lunch-time meal is required. This usually consists of sandwiches or salad followed by fruit. Nuts, dried fruits, scroggin (a mixture of nuts, fruit and chocolate), glucose lollies are most suitable for energy food snacks during the day on any hike. At morning and evening meals, the most time is available for preparation so this time should be spent in preparing hot meals. Lunch is usually a hurried meal so plans should be made for something simple and fast.

Breakfast can consist of weet-bix, granola, muesli or porridge etc mixed with dried fruit. Toast with a spread or savoury such as eggs, back beans or spaghetti etc. for seconds, a piece of fruit and a hot drink. It is best to do as much preparing for meals at home as possible. eg If you decide that for one of the breakfasts, you are going to have 2 weet-bix with sultanas for cereal, at home individually pack 2 weet-bix and sultanas into a plastic bag add (skim) milk powder and sugar if required. On the hike all you have to do is add hot water. As no tins are taken hiking, things like baked beans and spaghetti can be packed into re-useable, screw top aluminium or plastic jars. These are a lot lighter to carry home again than a tin. Wide mouth medicine bottles are ideal. Hot drink powders, sugar, milk powder, butter, spreads etc. can also be packed into these containers. Raw eggs can be taken hiking by wrapping them in paper and putting them in your billy, or by using special hikers egg containers purchased from camping stores. Egg powder can also be purchased from camping stores.

Billies are made in two shapes: squat and tall. The squat billy boils faster and is more stable if sat in, or on, the fire. The tall billy is probably better if hung. For a single person, 700-1000 ml billy is usually sufficient. Most people don't try to wash off the black on the outside of billies, though if you want to, soap works better than synthetic detergent. Carry billies in a cloth or plastic bag to avoid spreading black throughout the pack. A billy is an essential overnight hiking piece of equipment. Some hikers use only a billy for all cooking and as a plate and bowl for eating from.

Some hikers like to take a small frypan with a folding handle. This can double for a plate to eat out of. Others avoid the trouble by not frying food at all, or by using a billy for stir frying.

Very few serious hikers will carry a plate or bowl. Usually the billy and or frypan doubles for these items. If you desire to carry a plate or bowl, aluminium or plastic is best

Usually a spoon and a good, clean pocket knife is all that is needed as eating utensils. Some hikers are moving towards the 'splade' type utensil, a combination of a knife, fork and spoon in one utensil.

The mug also is not really required on an overnight hike. It is just extra weight. The single mans billy can double as a mug. If you desire to take a mug, plastic is ok. The mug like the billy can be used as a packing container for 'breakable' food items when hiking.

A scouring pad is useful for those burn on meals. However a good handful of sand into your billy, and then rinsed will do just as good a job. Likewise washing detergent is not really necessary on a hike and if liquid, can cause a mess in a pack if not properly packaged. It is also a good idea to take a couple of strong plastic bags, one to contain rubbish and scraps and another for the used food containers. Good hikers leave no rubbish behind.

For hikes into the snow or very wet, or hikes above the alpine tree line, for hikes where wood is scarce, a stove is essential. There is quite an array of small stoves, so choosing one can be quite a confusing task. Fuel is the most significant factor to be considered since it determines the type of stove, its safety, and the method and speed of operation for both boiling and simmering. Other factors include weight, cost and size. The choice of a stove is usually between speed and efficiency on the one hand, and simplicity and safety on the other. For most people, the choice comes down to a pressure stove burning shellite, or a non-pressure stove burning metho. While the pressure stoves have been widely used, they are potentially the most dangerous. The modern methylated spirits stove are the cheapest to buy and the ultimate in simplicity, stability, safety, ability to handle wind, and ease of operation.

SOMETHING FOR GOD

It matters not whether a hike is over a weekend involving a Sabbath or not, a hiker should always plan to spend time with his Creator. Small pocket size Bibles are readily available. Photocopies of devotional readings or lesson study section are lightweight, can add to a hikers devotional time and can be used for starting a fire when finished with.

SOMETHING FOR SAFETY

The following equipment needs to be considered when thinking about safety on a hike:

- map & compass
- first aid
- repair kit
- rope
- torch

matches
candle
pocket knife
log book/note book and pencil

Every person who goes for a hike should be as handy with a map and compass as they are with a knife and fork. With a good map and compass, and the knowledge of their use, you can visualise the other side of the mountain. A map and a compass, and the knowledge on how to use them are essential pieces of equipment for all hikes. Make sure that you have all the maps for the areas of your hike. It is a good idea to package your maps in plastic. Without a map and compass and the knowledge to use them, a hiker is a passenger and mere follower on the hike.

Every hiker should carry their own personal first aid kit. There are many kits commercially available but most of these are too bulky for hiking. It is recommended that a small collection of items be gathered and housed in a cloth bag or small plastic box. The accompanying list shows a typical personal kit.

1 aluminium foil rescue blanket (not a 'space blanket')
1 100 mm heavy elasticised bandage
1 50 mm gauze roller bandage
1 roll of sticking plaster (25 mm *Leucoplast waterproof*)
5 sterile non-adhesive pads (*Telfa* 75 x 50 mm)
12 bandaid type dressings
12 soluble aspirin tablets (*Disprin*)
12 strong pain relief tablets (*Panadeine*)
Personal medication
Antiseptic cream (*Savlon*), anti-histamine cream, safety pins, small scissors, needle, tweezers, anti-sunburn cream.

Footwear, packs and clothing sometimes need repairs. A small repair kit containing needles and a strong thread, buttons, soft picture hanging wire, and a spare torch globe are also essential for a hike. Adhesive plaster from the first aid kit is handy for repairing tents, groundsheets or sleeping bags.

A length of cord or small rope should always be carried. It can be useful for lots of reasons; holding up a tent fly, or our pants, lowering packs down a steep slope, replacing a broken shoe lace etc.

A small torch should always be carried, whether on a day walk or extended hike. Make sure the batteries are fresh.

Several boxes of matches in water tight containers should be carried on all hikes. For added safety the matches should be stored in different parts of your pack. A cigarette lighter is very useful, especially in wet conditions.

A candle is an optional piece of equipment, but some hikers carry a small or part candle as backup to a torch. It is also surprising how much warmth a small candle can give in a confined space.

A pocket knife has a thousand uses on a hike. However, at all times a hiker must be responsible with the use of a knife. No knife should be used to injure the environment.

It is always a good idea for a hiker to keep a written record of the hike. This record can be in the form of a log book or simple notes. This record can be used to evaluate the hike and the hiker for future reference.

SOMETHING FOR HYGIENE

The following equipment needs to be considered when thinking about hygiene on a hike:

- tooth brush
- tooth paste
- towel
- soap
- deodorant
- comb
- toilet paper

Hygiene is of upmost importance and should not be neglected on a hike. A small tube of toothpaste and a toothbrush do not take up much room. Some hikers cut half the handle off the brush so that it can fit into even smaller spaces.

When hiking the body and especially face, hands and feet should be washed as often as possible. This is not only comfortable for the hiker but for those with them. Washing the feet aids in the cooling of the feet and removes dust and grit that may have found it way it during the hike. A small towel or quarter towel is essential on a hike. Soap is optional. If using soap water must be taken away from the source (creek/river), so that there is no chance of soap contamination. Deodorant is optional.

A comb or brush makes it easy for others to look at you, and helps the hiker manage the hair.

Toilet paper is essential. A small roll of toilet paper has many uses on a hike. It can be used to help that fire to start, used as tissues, can be used as wound dressing (if nothing else is available) etc., as well as for what it was designed.

SOMETHING TO CARRY IT ALL IN

The pack is a major piece of personal gear needed to carry all the other pieces of equipment in a compact and efficient way. Basically the human body maintains an upright stance when walking and it should stay that way as much as possible. The carrying of a load on the back causes us to lean forward in order to keep the centre of gravity over the legs. Unfortunately this produces stress on the whole body, particularly the spine, thus wasting energy and increases the chance of injury. The load must be kept as light, and carried as near the back, as possible.

There is a big array of packs available and it is therefore important to have some idea of what you require and what to look for. You should first decide what sort of hikes you are going to do. Long hikes and cold climates call for larger packs; densely vegetated country calls for a slim pack without side pockets to catch on the scrub. Only you can decide what

you want to do. The size of the pack is really dependant on who is going to carry it. People up to 16 or 17 years of age, should carry no more than a 40 to 60 litre pack. There are three basic designs: those with no frame, those with an external frame (usually H-shaped), and those with an internal frame. A frameless pack is definitely the lightest and cheapest but on the other hand requires more care in packing and there is no ventilation between it and the wearer's back. The H-frame gives welcome ventilation for the back in hot weather, is compact and can carry big loads quite comfortably. Less care is required in packing, since the objects are held away from the body. The internal framed pack only has pieces of stiffening aluminium for a frame. Avoid internal framed pack where the aluminium strips cannot be removed. The big advantage of these designs is comfort. The bag hugs your back and is very stable. In some designs however, your back may get hot in summer. Most of the load is transferred to a hip belt which concentrates the load where it is most easily carried.

HIKING

Hand-out sheet 8.

The Six

SOMETHINGS

of Camp Equipment:

something for WEARING

something for SLEEPING

something for EATING

something for GOD

something for SAFETY

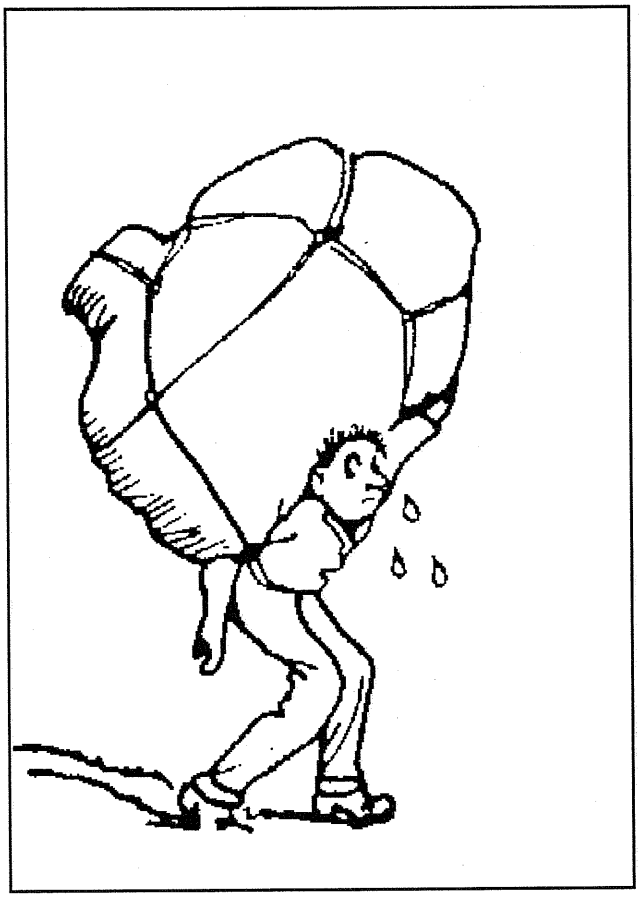
something for HYGIENE

something to CARRY IT ALL IN

HIKING

Hand-out sheet 9.

Hiking Equipment



Take care of the grams and the kilograms will take care of themselves.

ACTIVITY 6

Understand the difference between a magnetic and true bearing, know when and how to use them. Demonstrate your ability to do a resection.

OUTLINE

Practice is the only way to understand how to do bearings and resections. Make sure that each Pathfinder has a compass and have them go through the steps of doing bearings and the resection as outlines in the following notes. Use hand-out sheet 10 to explain the naming of compass parts. Campout time is allocated to this activity.

RESOURCE MATERIAL

A direction, expressed in degrees and measured from north is called a bearing. In quoting a bearing you must state the north from which it is measured, (True, Grid or Magnetic) eg. 234 degrees magnetic, 234 degrees true. Magnetic bearings are used when you wish to take a bearing from your position to an observed feature to which you want to go. This bearing can then be followed without worrying about the grid-magnetic angle (G-MA).

The angular difference between true and magnetic north, is called the 'Magnetic Declination' (or sometimes, incorrectly, magnetic variation). The 'G-MA' is the angular difference between grid north and magnetic north. Therefore, on some maps where grid north and true north are the same, the magnetic declination and the G-MA are the same. THE G-MA MUST BE CONSIDERED WHEN TAKING BEARINGS FROM A MAP. It is worth remembering that for a G-MA of 10 degrees (Eastern states of Australia), if ignore, produces a lateral error of 100 m over a distance of 600 m - or 1 km when the distance sighted, or travelled is 6 km.

To take a magnetic bearing, point the travel arrow towards the feature where you want to go. Rotate the compass housing until the orienting arrow is directly below the magnetic needle. The bearing indicated at the index line is the bearing related to magnetic north. The bearing may be followed by keeping the orienting arrow under the magnetic needle and walking in the direction of the travel arrow.

You may want to take a bearing from a map, and set it on a compass, in order to travel to a land feature which is not in view, or may go out of view, as you proceed into a valley or trees en route. Alternatively, you might want to know what direction to look, so as to see a particular land feature which is visible.

Assume that you are on a mountain top and you want to go (or look) towards a nearby river junction which you cannot see. Your compass can guide you if it is first set from the map. The setting process ignores the magnetic needle and is uses the compass base and housing as a protractor. The steps are as follows: (Hand-out sheet 11)

Step 1 — Place the long edge of the compass along the bearing desired. Ensure that the travel arrow points in the direction of your destination. Ignore compass needle.

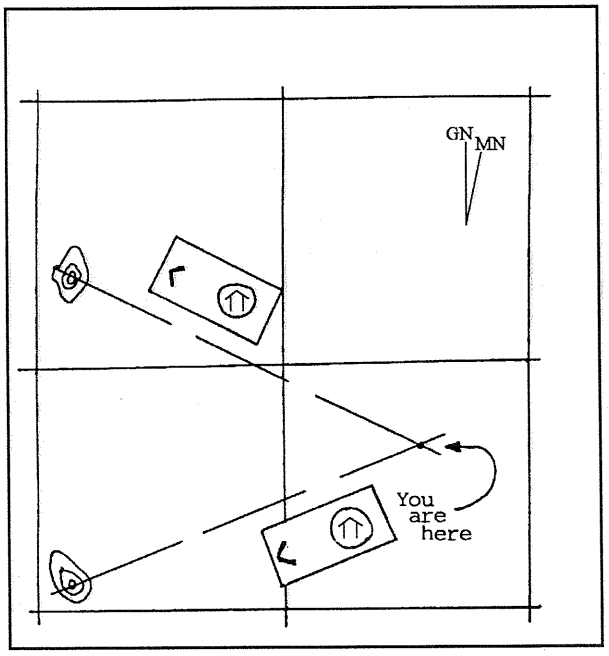
Step 2 Hold the compass base on the map and turn the compass housing until the orienting arrow is parallel with the grid lines and points to grid north. Ignore the compass. This is a grid bearing.

Step 3 Correct for G-MA. Place the compass on the north arrow diagram on the map. Without altering the setting, align the orienting arrow with the grid north arrow. Hold the compass base and turn the housing to move the orienting arrow towards the magnetic north arrow on the diagram (it is a magnetic bearing you want). The correct number of degrees is counted as the dial passes the index line (ie remember - north arrows are only a diagram and not accurate bearings). Ignore compass needle.

Step 4 The compass is now set to a magnetic bearing. Hold the compass at your waist, in the palm of your hand, with the travel arrow pointing directly ahead. Turn yourself around until the north end of the needle aligns over the orienting arrow. The direction to proceed (or look) is now indicated by the travel arrow on the compass.

You may want to take a bearing from the land or a land feature with the compass and refer it to the map to locate that feature on the map. This is done by firstly taking a magnetic bearing, converting it to a grid bearing by following the above steps in reverse. This is the procedure followed when doing a resection.

Resection is useful for locating your position on a map. It is useful for locating your position after 'slipping' or to confirm a position if you are not sure where you are.



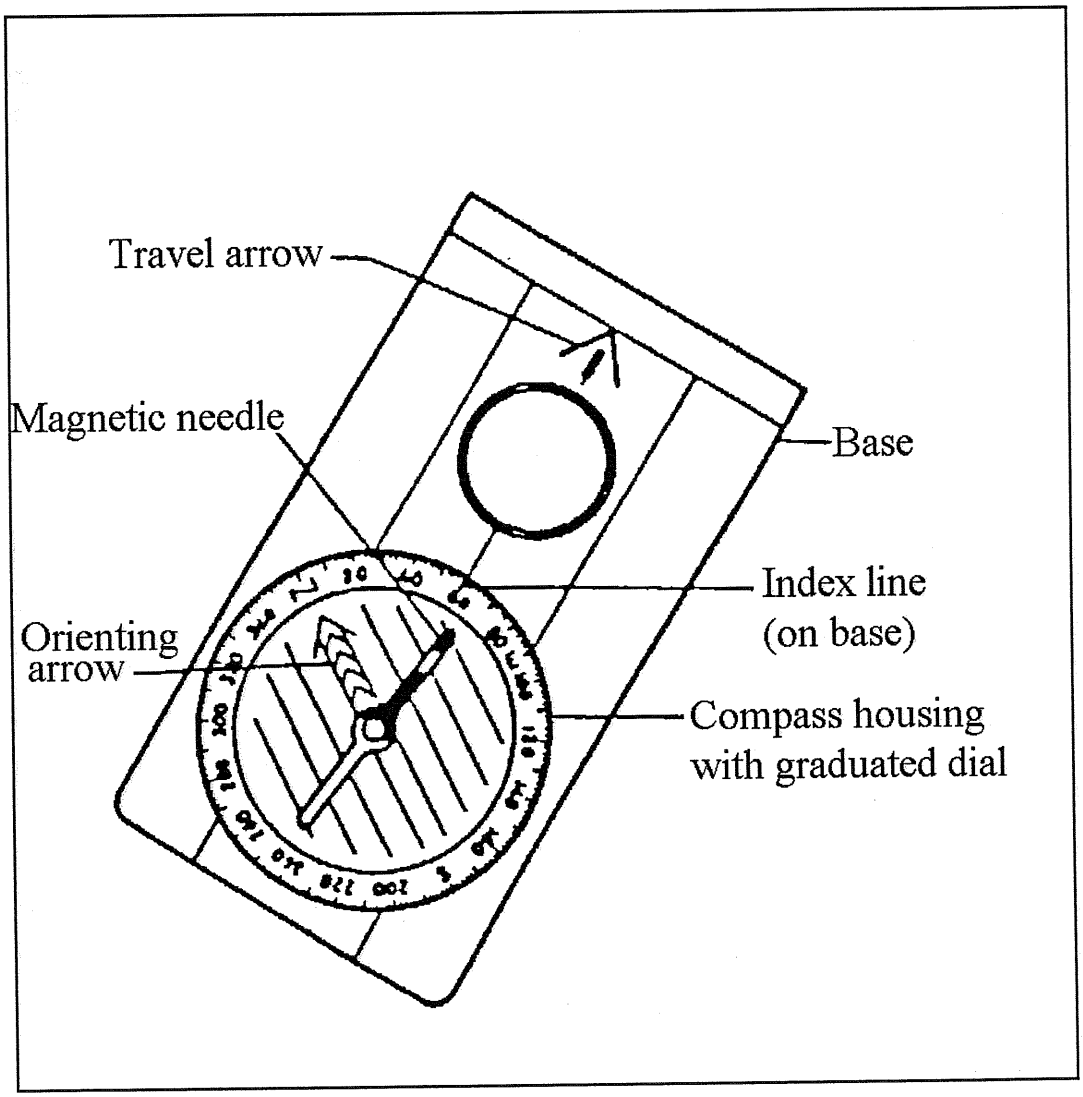
Look around, you will need to identify two landmarks, say mountain peaks, that can be unmistakably identified on the map. If a bearing is taken on one peak and transferred to the map (using the method outlined above), then another bearing on the other peak is also transferred to the map, the intersection of the two lines will be your position. Remember G-MA must be taken into account when transforming magnetic bearings to grid bearings for resection to be accurate.

The one bearing resection method can be used if you are on a linear feature like a river, track or road, only one bearing from an identifiable feature is needed to establish your position, provided the linear feature does not meander considerably. Where the bearing taken from the identifying feature crosses the linear feature, when plotted on the map, is your position.

HIKING

Hand-out sheet 10.

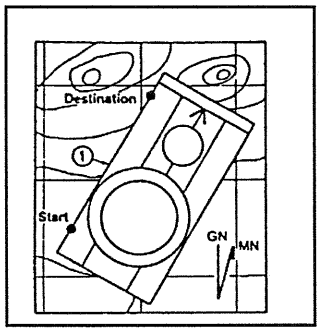
Parts of an orienteering compass



HIKING

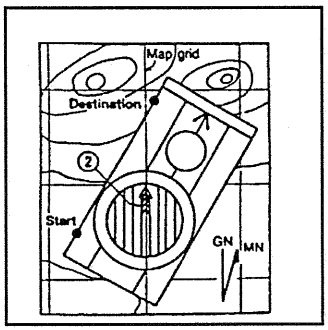
Hand-out sheet 11.

Using a compass



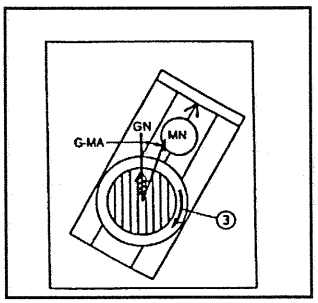
Step 1

Place the long edge of the compass along the bearing desired. Ensure that the travel arrow points in the direction of your destination. Ignore compass needle.



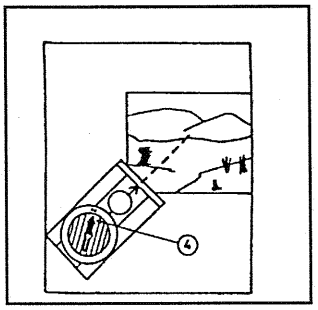
Step 2

Hold the compass base on the map and turn the compass housing until the orienting arrow is parallel with the grid lines and points to grid north. Ignore the compass. This is a grid bearing.



Step 3

Correct for G-MA. Place the compass on the north arrow diagram on the map. Without altering the setting, align the orienting arrow with the grid north arrow. Hold the compass base and turn the housing to move the orienting arrow towards the magnetic north arrow on the diagram (it is a magnetic bearing you want). The correct number of degrees is counted as the dial passes the index line (ie remember - north arrows are only a diagram and not accurate bearings). Ignore compass needle.



Step 4

The compass is now set to a magnetic bearing. Hold the compass at your waist, in the palm of your hand, with the travel arrow pointing directly ahead. Turn yourself around until the north end of the needle aligns over the orienting arrow. The direction to proceed (or look) is now indicated by the travel arrow an the compass.

ACTIVITY 7

Be familiar with the hikers first aid for the following problems:

Hypothermia
Hyperthermia
Burns and scalds
Sprains
Blisters
Ticks
Leeches
Stinging tree and nettles

OUTLINE

This is a very important skill required by all hikers. Concentrate on the aspects of hypo and hyperthermia. Have a person act out the symptoms and have the Pathfinders render first aid. Move onto the other sections if time is allowed.

RESOURCE MATERIAL

HYPOTHERMIA

Hypothermia, the lowering of the bodies core temperature, can be expected to be a hazard anywhere in the outdoors when the weather is cold (about 10 degrees C, or less), windy or wet, though not all three factors have to be present.

Early warning. Tiredness is probably the first sign and maybe shivering. Both of these subtle signs tell you that you need to take stock of your position. Are you adequately clothed? Do you need some quick energy food? How far do you have to go and how is the rest of the party? Tell them of your feelings, it is their worry as well as yours.

Danger symptoms. The appearance of major symptoms is a definite sign that you are in trouble requiring the proper action to be taken within about half an hour to avert a crisis. The insidious nature of hypothermia is such that the victim may not complain of the cold and may deny that there is anything wrong. Believe the symptoms, not the victim. The major symptoms are (all need not be present): uncontrollable shivering; slow reactions; awkward movements; stumbling; pain in limbs; cramps; slow or slurred speech; incoherence; memory lapse; hallucinations; exhaustion; apathy and possibly noticeable personality changes.

It must be emphasised that the symptoms may not be easy to detect and that all members of the party may be suffering themselves to some degree. Conscious effort should be made to prevent hypothermia. Warmth, food and rest will revive a cold and tired person suffering from the early signs of hypothermia. These activities, warmth, food and rest, should be an integral part of every hike.

Treatment (Hand-out 12)

1. *Shelter the victim.* Stop immediately in the nearest reasonable shelter from wind.
2. *Reduce heat loss.* Lie the victim down and wrap in as many layers of clothing as possible, then a sleeping bag. Don't forget the head and face. Next enclose in a waterproof layer such as a plastic bivvy bag, a ground sheet. In severe cases don't remove wet clothing, but if a second waterproof wrapper is available use it first to keep the dry clothing dry. Pitch a shelter over the victim.
3. *Warm the victim.* - but only slowly and carefully. Ensure that there is good insulation underneath. If possible another person (preferably fit) should get into the sleeping bag with the victim and others should lie beside in other bags.. Have as many people under the shelter as possible. Under no circumstance attempt to restore body heat by massage, warming beside a fire, hot drinks, hot water bottles, hot baths or alcohol as these divert blood from the vital organs to the skin.
4. *Give warm, sweet drinks* if the victim is fully conscious. The drink should be warm not hot. Include glucose if possible.

Important notes

Rest of the party. Do not forget the rest of the party including yourself. If one person is suffering from hypothermia, it is a reasonable bet that others are as well.

Moving the victim. The victim should remain under shelter until noticeably fit. For a mild case this may be over night.

Apparent death. People in deep hypothermia may appear dead. Nevertheless rewarming and CPR should be started.

HYPERTHERMIA

Hyperthermia is the overheating of the bodies core temperature. Hyperthermia can occur under wet and cold conditions, if the hiker if heavily insulated and working hard, but is most common under hot and warm conditions. The symptoms, in increasing order of severity, are: cramps; weakness; pallor; dizziness; headache; rapid pule and breathing; free sweating in early stages, ceasing as conditions worsens; nausea; vomiting rapid temperature rise; collapse; mental disturbance. The outcome can be death.

Treatment

The treatment is to cool the victim in the shade and give plenty of salt-laced water (half a teaspoon per litre), if conscious, until the urine is pale in colour. Remove clothing, douse the body with water or immerse if possible. Gently stretch any cramped muscles.

The most extreme case can rapidly result in death. Pay particular attention to reducing the temperature: if the body cannot be immersed in water cover it with a wet inner sheet and fan it. Ensure that breathing remains present. Medical help should be sought.

BURNS AND SCALDS

Immediately immerse the affected area in cold water. If this is not possible, apply clean, cold, wet cloths. Except for the extinguishing of flames, nothing should interfere with the cooling of the burn. Keep the part cool until the pain subsides, then exclude air with a cover of a clean dry dressing or cloth.

Do not apply ointments, oils or grease of any kind. Do not break blisters except in cases where it is clearly obvious that normal wear and tear will do so anyway. In this case, clean the skin, prick the edge of the blister with a sterilised needle and express the fluid. Exercise scrupulous cleanliness in this operation. Apply antiseptic cream and cover the blister so that any plaster used does not adhere to the blister.

SPRAINS

Sprains occur at joints and can be very painful but not necessarily disabling. The question sometimes arises whether a sprain or a fracture has occurred. Symptoms include pain, tenderness and swelling but, in comparison with a fracture, there is no loss of function and no deformity. Treatment includes immediate cooling (in water or snow), elevation of the leg and a crepe bandage applied firmly. Do not remove the shoe if the ankle is sprained. It is often best to keep walking after a rest, though with a lightened load and extra care.

BLISTERS

Prevention is better than cure. Blisters are usually caused by badly fitting footwear or foreign matter in socks. If you fee that a blister is forming, don't wait for it to develop, but place over the hot spot a liberally sized piece of firm sticking plaster which has a smooth finish (like *Leucoplast waterproof*). If a blister has formed, the treatment is the same, though a hole cut in a number of layers of the plaster may relieve pressure. If a blister bursts, keep it scrupulously clean. The comments above(burns), about pricking blisters, may also be applied to the feet.

TICKS

These parasites are more of a nuisance than a danger, except perhaps to small children. Apply methylated spirits to the tick for 5 to 10 minutes then pluck out with tweezers, gripping as near to the skin as possible. If tweezers are unavailable, a piece of cotton with an overhand knot in one end, placed around the tick near the skin can be used to lever the tick out. The affected area may swell and itch for a day or so.

LEECHES

Leeches are another nuisance, but rarely dangerous. If leeches are around, examine limbs and footwear at every spell. A glowing twig, lighted match or touch of salt will make them release. Profuse bleeding may occur, but a simple bandaid will usually stop this. A leech may be extracted from the eye by moistening the corner of a handkerchief, dipping it in salt and gently applying it to the free end of the leech.

STINGING TREES AND NETTLES

Contact with leaves of the giant stinging tree can be extremely painful, whilst nettles are mostly just a nuisance. The best action is to recognise and avoid them. Antiseptic creams with local anaesthetic may relieve the annoyance and some soothing lotions can assist, as can methylated spirits lightly applied.

HIKING

Hand-out sheet 12.

HYPOTHERMIA

Believe the symptoms, not the victim.

Treatment

1. *Shelter the victim.* Stop immediately in the nearest reasonable shelter from wind.

2. *Reduce heat loss.* Lie the victim down and wrap in as many layers of clothing as possible, then a sleeping bag. Don't forget the head and face. Next enclose in a waterproof layer such as a plastic bivvy bag, a ground sheet. In severe cases don't remove wet clothing, but if a second waterproof wrapper is available use it first to keep the dry clothing dry. Pitch a shelter over the victim.

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4. *Give warm, sweet drinks* if the victim is fully conscious. The drink should be warm not hot. Include glucose if possible.

Important notes

Rest of the party. Do not forget the rest of the party including yourself. If one person is suffering from hypothermia, it is a reasonable bet that others are as well.

Moving the victim. The victim should remain under shelter until noticeably fit. For a mild case this may be over night.

Apparent death. People in deep hypothermia may appear dead. Nevertheless rewarming and CPR should be started.

ACTIVITY 8

Determine the length of your stride and measure by pacing a distance of one kilometre. Discuss the rate of travel for different terrains.

OUTLINE

Have the Pathfinders determine the length of stride by having them count the number of paces they require to cover a distance of 100 metres. Have them do it several times. Using the average x 10 is an indication of the number of steps that they would be required to do to cover a distance of 1 kilometre. On campout have them use this information to pace a distance of 1 kilometre, and time how long it takes them. Make sure they understand that estimating distance while on a hike is a combination of paces, time and terrain. This activity has a campout component.

RESOURCE MATERIAL

An important element of following a route while hiking, is being able to estimate how far you have travelled. Often you don't have to be particularly accurate, the question being: have I travelled one kilometre or five? If you are serious, little effort is needed to determine the number of paces you take over a measured distance. Carry a pack, and try uphill and down, as well as flat ground. You can also time yourself over a measured distance to get the feel of walking at 5 km/hr.

On scrubby country, rocky underfoot, or with gentle ascents and descents will take you approximately 150 % longer to cover a kilometre than on flat ground. In thick scrub or jungle, steep ascent or descents with rocky or bad underfoot will take you approximately 200% longer to cover a kilometre than on flat ground. Long steep ascents or descents of 300 m elevation or more with rocky or uneven underfoot could take you 400% longer to travel a kilometre than it would to travel a kilometre on flat ground.

In ascending or descending rocky or broken ground your pace will be very much shorter and slower, and you may take up to 170% (depending on slope) more steps to cover the same distance on even ground. On very steep slopes you may take double (200%) or more the number of steps to cover the same lateral distance .

Without out any personal specific rate of travel data, you may resort to a simple rule of thumb as outlined on hand-out 13.

HIKING

Hand-out sheet 13.

ESTIMATE WALKING TIME

For an average walker with an medium pack

1. Allow 1 hour for every:

- 5 km of easy going
- 3 km of easy scrambling
- 1.5 km or less of rough country, deep sand, soft snow or thick bush

2. In addition, allow 1 hour for every:

- 500 m up (range 300 to 700 m)
- 1000 m down

Also consider fatigue, depending on conditions and fitness.
For the very fit and experienced, reduce times by up to a third.

ACTIVITY 9

Discuss the signs for assessing weather changes.

OUTLINE

Present the Pathfinders hand-out sheet 14 and discuss with them the possible effects on the weather these clouds might have.

RESOURCE MATERIAL

An infallible weather forecast, if a change is coming up, is in the *nautical couplet:*

> "When the rain is before the wind, your topsail halyards better mind,
> But when the wind is before the rain, then hoist your topsails up again."

In plain words this says that when rain comes first without wind then expect a long period of bad weather with high winds and heavy rain. But when wind comes first and is followed immediately by rain, then fine weather will follow at short notice.

Many people are trapped by bad weather in the bush every year, and if they but knew a few simple weather signs they could be prepared, and get to a position of safety before really bad weather sets in.

Another infallible weather signal is the appearance of clouds. Clouds are large masses of condensed water vapour. Their presence, type, and size indicates the temperature and pressure of air masses, enabling the prediction of weather. The higher the clouds are, the better and more stable the weather is likely to be. Storm clouds are generally black, low, and massed in large clusters, while fair-weather clouds are high and white.

Cumulonimbus clouds bring hail, winds and thunderstorms. These dark heavy clouds may grow very large, towering up into anvil shapes. They may sometimes contain thunderstorms, along with lightning.

Fluffy **Cumulus** clouds usually indicate good weather, but if they are clustered together and are dark in colour, they can indicate rain. If they are seen floating over the open ocean, they can indicate that land is nearby.

Stratocumulus clouds sometimes form on top of cumulus clouds, spreading out into a thick sheet. Stratocumulus clouds may produce light showers that disperse in the evening.

Cirrus clouds are also known as 'mares' tails', are very white and wispy. They tend to form at very high altitudes in good weather. Because the atmosphere is so cold at that height, these small clouds are formed entirely of crystals of ice.

Changes in the weather are always heralded by variations in wind speed. Using the *Beaufort Scale*, the speed of the wind can be gauged by its effect on certain objects, as well as on the landscape and sea. In this scale, wind speed is divided into 12 strengths, from flat calm to hurricane. Hand out sheet 15 displays the Beaufort wind-speed scale.

Many so-called "old wives' tales" are soundly based upon observation. For example, the ancient rhyme, "Red sky at night - shepherd's delight; red sky at morning - shepherd's warning" can often be an accurate prediction. A red sky at dawn means that there is a lot of moisture in the air, since the sun is reflecting off clouds. This sign usually means that a storm is approaching.

Animal behaviour can also indicate weather changes, as can a natural phenomenon such as a rainbow. A rainbow results from sunlight shining through droplets of water vapour in the air following rain. The drops act as a prism, splitting the light of the sun into its component colours. A rainbow usually indicates good weather, particularly if it is seen in the afternoon.

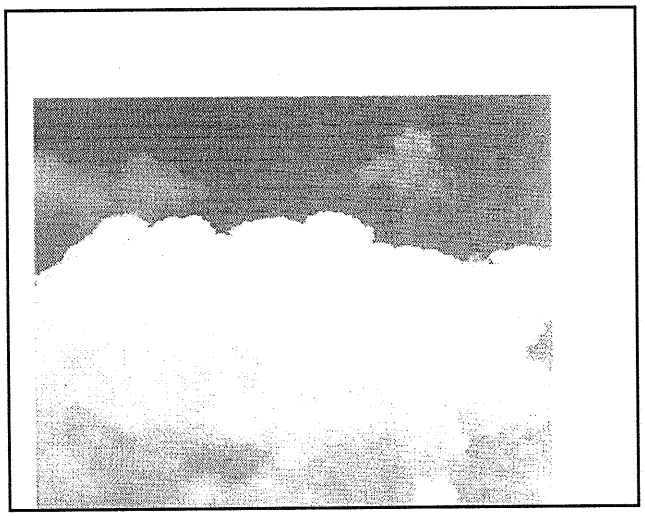
Pine cones react to humidity. If the air is dry, the scales shrivel and the cone opens up. Just before wet weather, the scales absorb moisture and the cone regains its natural shape.

USING EVERY NATURAL SIGN

A change in the weather can be indicated by a shift in the wind's direction or strength, or by changes in cloud formation. Prevailing winds usually bring particular weather from the same quarter each time. A dry, steady wind changing direction or slacking usually precedes rain. Morning mist or fog indicates stable weather, but wind - especially with low hill fog - may cause rain. A clear sky at nightfall indicates a cold, possibly frosty night, with no clouds to retain heat. Before rain, increased atmospheric pressure makes people's rheumatism more painful, causes plants to open their pores (thus smell stronger), makes wooden objects swell. Sound seems to travel further, and there is an awareness of something about to happen.

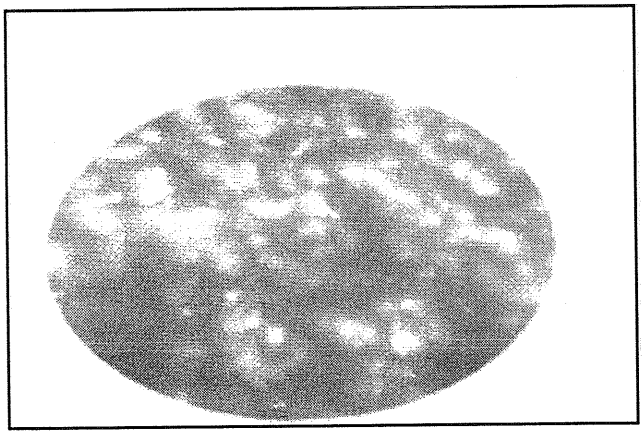
HIKING

Hand-out sheet 14.

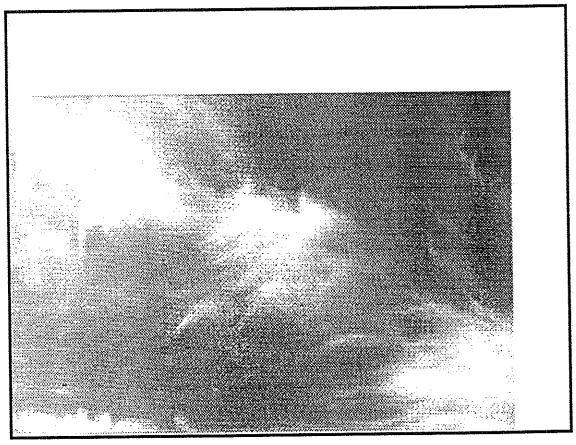


Cumulus

Cumulonimbus



Stratocumulus



Cirrus

HIKING

Hand-out sheet 15.

BEAUFORT WIND-SPEED SCALE

Force	Description	Velocity (kph)	Effects
0	Calm	Less than 1	Smoke rises vertically
1	Light Air	1-5	Direction shown by smoke, but not by wind
2	Light Breeze	6-10	Wind felt on face; leaves flutter
3	Gentle Breeze	11-17	Leaves and small twigs in constant motion; wind extends flags
4	Moderate Breeze	18-27	Dust and loose paper raised; small branches are moved
5	Fresh Breeze	28-35	Small trees in leaf begin to sway
6	Strong Breeze	36-45	Large branches in motion; umbrellas used with difficulty
7	Near Gale	46-55	Whole trees in motion; difficulty felt when walking
8	Gale	56-67	Twigs broken off trees; progress generally impeded
9	Strong Gale	68-78	Slight structural damage; chimneypots and roof tiles removed
10	Storm	79-92	Trees uprooted; considerable structural damage
11	Violent Storm	93-105	Wide spread damage
12	Hurricane	106+	Countryside devastated

ACTIVITY 10

Know what to do when confronted with the following hiking hazards:
- Bushfire
- Water crossings
- Electrical storms

OUTLINE

Set yourself up with a mock stream and have the Pathfinders practice the correct ways of crossing. Have them try and identify the best places to cross a river or stream. Discuss the bushfire survival rules.

RESOURCE MATERIAL

BUSHFIRE

If you are caught in a bushfire your chances of survival are excellent provided you take the correct action. Try to assess carefully what is happening: how close is the fire front, how fast is it moving and in which direction. What are your escape routes or refuges? Above all plan your action and don't panic. If you commit the following rules to memory they should become an instinctive pattern of behaviour.

Heat is your main problem. It causes body overheating which can easily lead to states of utter exhaustion and collapse. Radiation is the principal method by which you receive the heat,but like light, it travels in straight lines and is greatly impeded by opaque materials such as rock. metal, wood, earth and clothing. It can also be reflected.

It is therefore vital to shield yourself from radiated heat and to desist from panic or flight, that both sap strength and cloud judgement.

See hand-out sheet 16 for bushfire survival rules.

CROSSING WATER

Rivers and streams are always dangerous - from their headwaters, or source, where they are fast flowing, narrow, and shallow, to the slow-moving depths of the lower reaches. Even if water appears calm and slow moving, shallow and safe, assume there are hidden dangers. In even the clearest water you can never see everything below the surface. Headwaters are easier to cross than deep water, but take care when crossing fast water. Slower waters are generally deeper than fast ones, and may contain treacherous weeds, mud banks, and dangerous, hidden obstacles. Never wade or swim across water if there are safer options available - do you actually need to cross?

The best places to cross (hand-out sheet 17) any kind of water is where there is a bridge, pontoon, or ferry. Therefore, before getting wet, scout widely up and down the stream. You may find a bridge, or a wide, even section where the river bed is firm, and where a wet crossing can be made in safety. Check that the far bank is not too steep.

It is impossible to assess the depth of most rivers without getting wet. Underwater obstacles are not always visible from the bank, and it is not easy to determine the strength of the current and the force of the water.

When wading across streams or rivers (hand-out sheet 18), wear some kind of footwear to protect your feet and to give yourself a firm footing. Be ready for deep mud or silt, vegetation, or sudden changes in river depth. Study the water before you enter it, watch to see what the waves do, and whether there are signs of any underwater obstructions. Always cross very slowly.

Crossing alone: Use a pole as your probe, then in the water, as a third leg, maintaining an extended "T" shape - like a tripod. Place the pole upstream of you and lean on it as you lift leading foot, moving your foot sideways across the current and replacing it firmly on the river bed. Take short shuffle paces, to ensure that the current does not force your leg backwards and cause you to fall over.

Crossing in a huddle: Three people can form a tripod shape to cross a river. Link arms closely, and lean in towards the centre, bending forwards slightly at the waist. The strongest person should be upstream, and they should make the first moves. The other support him in case he falls. This is a stable formation, and is very effective in shallow, fast water.

Crossing in a line: Several people can cross in a line, with the strongest person upstream, and the others providing stability, supporting anyone who might fall. The leader will decide where to cross, and he should take the first step. The others should link arms with him, with the weakest and lightest person in the middle. Cross slowly and carefully. Keep well balanced, putting each foot down deliberately.

If the water is too deep to wade, you may have to swim. Make a float to help you get across. Before entering the water, look for a suitable place on the opposite bank. Take off the majority of your clothing so that they remain dry, and bundle them with your gear in a waterproof survival bag. Enter the water with care. Cross upstream of your landing place, to allow for the current. Keep your body weight off the bundle, but hang on to it with your arms. Kick your legs to propel you along. On reaching the other side put dry clothing on to prevent the possibility of hypothermia.

ELECTRICAL STORMS

Lightning is a discharge of very high voltage electricity between the earth and a cloud. Since it usually follows the shortest path, high points (which are closer to the clouds) are 'struck' for preference. Because lightning has no problem jumping a gap of thousands of metres, it can easily jump a few metres from the floor to the ceiling of a cave. The following places should be avoided during an electrical storm: the top of hills or ranges; locations near on isolated object like a tree in a clearing; caves, overhangs and cliffs.

The current flows through the earth to the 'strike' point in a pattern similar to moisture being drawn to a tree by its roots. Thus two points on the ground a short distance apart can be at a different voltage. To avoid the ground electricity flowing through your body, minimise the number of contact points you make with the ground and keep them as close as possible. Therefore, don't lie down. Sit with your hands in your lap, knees drawn up near the chin and heels close to the body. Theoretically, you should squat on one leg. Members of a party may sit together, but should not be touching. Both packs and climbing ropes give insulation between you and the ground.

HIKING

Hand-out sheet 16.

BUSHFIRE SURVIVAL RULES

1. Shield from radiation. Use every means at your disposal to cover all exposed skin. Wool is the best material. Protect the top of your head from falling cinders.

2. Assess your position. Don't enter flames that are more than 1.5 m high, or 5 to 10 m deep, or when the undergrowth is very dense. Decide what gear is needed and be prepared to jettison the rest if the weight will hamper you.

3. Don't run or delay. Resist the temptation to run unless your chances of escape are quite high. If you flee, don't run uphill since you will tire much more quickly and fire moves fastest uphill.

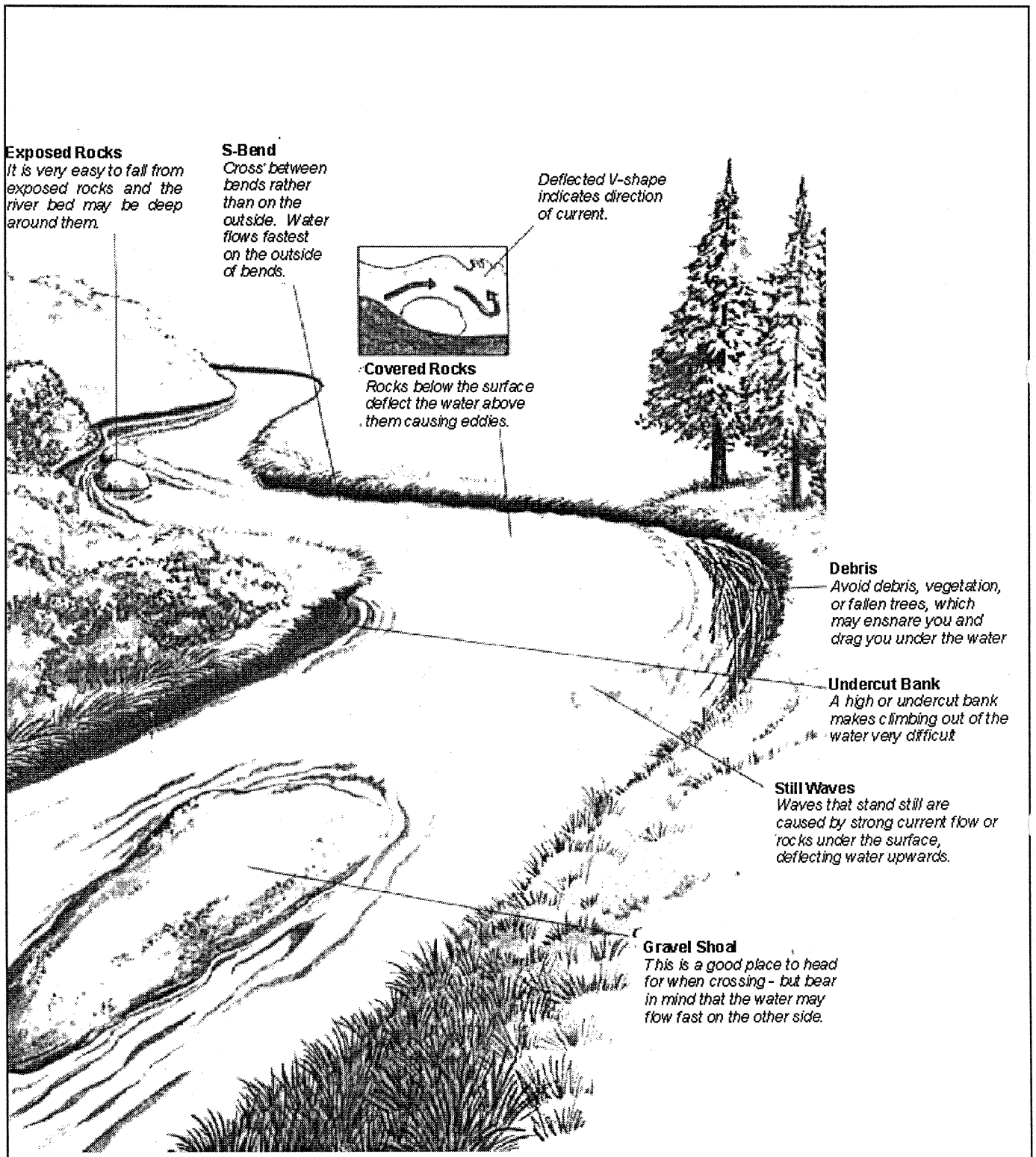
4. Take refuge. If near a car or building go inside and close the windows and doors. Lie face down on the floor and cover yourself. Petrol tanks seldom explode. Seek barest ground and a culvert, large log, or rock to shelter from the heat. Lie face down. Bury yourself if possible. A running stream or pond is good, but reject elevated water tanks.

5. Back burn. Light a back burn, 5 to 10 m long if trapped. Step onto the burned area and wait in the best available refuge until the fire passes.

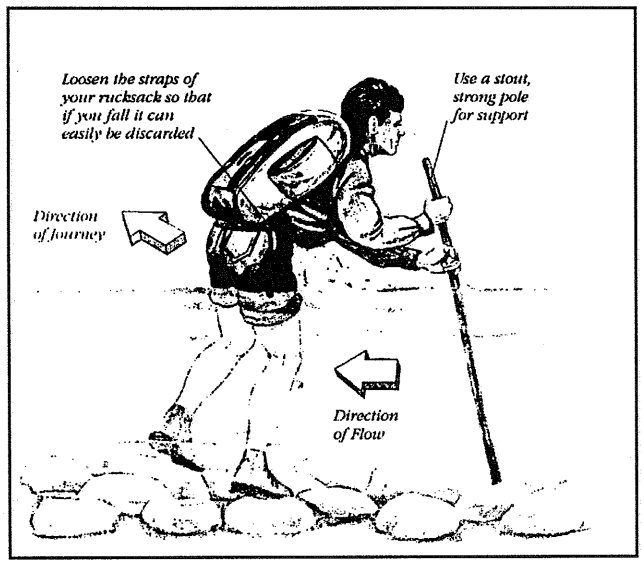
6. Limit breathing. Lower your breathing rate when smoke is dense and await the arrival of the usually frequent pockets of fresh air. The air nearest the ground is the freshest and coolest. A wet cloth over the face can help.

HIKING

Hand-out sheet 17.


Exposed Rocks
It is very easy to fall from exposed rocks and the river bed may be deep around them.
S-Bend
Cross' between bends rather than on the outside. Water flows fastest on the outside of bends.
Deflected V-shape indicates direction of current.
Covered Rocks
Rocks below the surface deflect the water above them causing eddies.
Debris
Avoid debris, vegetation, or fallen trees, which may ensnare you and drag you under the water
Undercut Bank
A high or undercut bank makes climbing out of the water very difficult
Still Waves
Waves that stand still are caused by strong current flow or rocks under the surface, deflecting water upwards.
Gravel Shoal
This is a good place to head for when crossing - but bear in mind that the water may flow fast on the other side.

Hand-out sheet 18.



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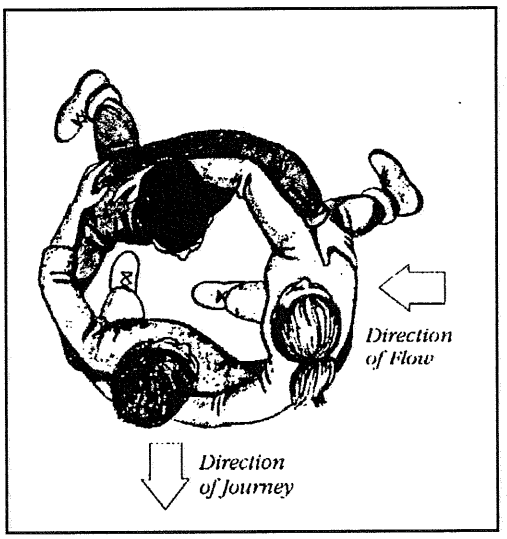

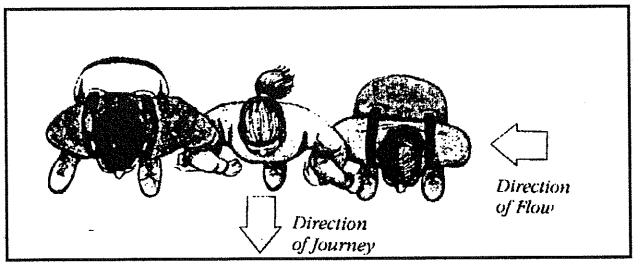

ACTIVITY 11

Present a log book which includes reports on flora, terrain, fauna, fatigue, food eaten, and approximate rate of hiking in kms per hour, and showing that you have completed a and b:

a. 10 km a day, 2 days in one week
b. 25 km hike

(if 'c' is completed, you can qualify for the Hiking Honour)

c. 15 km a day, 2 days in one month

OUTLINE

These activities can be achieved on a back packing weekend. As noted in the activity, if you schedule a third weekend into your calendar, or maybe participate in a conference event that covers the required distances in the set times, you can also qualify for the Hiking Honour.

RESOURCE MATERIAL

Your planning for these activities, should be included as you work through each of the activities in this Specialty. If you select your destinations at the commencement of this Specialty, all your study can be focussed towards these events:

Clothing and equipment for your pack
Preparing a log book
Hiking Techniques
Studying the particular maps you will be using
Compass Use
First Aid
Scheduling the distances you can cover per day
Planning for Emergencies