TOPIC 10
Outdoor recreation

OVERVIEW
10.1 Reasons for participation in outdoor recreation
10.2 Planning skills
10.3 Camp site selection
10.4 Conservation skills
10.5 Navigational skills
10.6 Emergency management skills
10.7 Leadership styles
10.8 Understanding group dynamics
10.9 Facilitation skills
10.10 Understanding strengths and weakness
10.11 Topic review

OUTCOMES
In this topic students will:
- propose actions that can improve and maintain an individual’s health (P6)
- develop plans for participation in physical activity to satisfy a range of individual needs (P10)
- demonstrate the technical and interpersonal skills necessary to participate safely in challenging outdoor recreational activities (P14)
- utilise a range of sources to draw conclusions about health and physical activity concepts (P16)
- analyse factors influencing movement and patterns of participation (P17)
10.1 Reasons for participation in outdoor recreation

Outdoor recreation includes a wide range of activities undertaken for leisure outdoors. Australia has a great history of participation in outdoor recreation, with most people enjoying the wide range of suitable natural environments, including snowfields, rivers, beaches and mountain ranges.

People of all ages can benefit from participation in a range of outdoor pursuits, which can result in considerable physical, social, intellectual and emotional outcomes, including:

- enjoyment
- fitness
- challenge
- spiritual growth.

Some people prefer activities for relaxation like fishing and bird watching, while others seek more vigorous and adventurous activities including rock climbing, hang-gliding and sailing. Some outdoor recreational activities require detailed planning to ensure the safety of participants on extended expeditions or in potentially high-risk situations, while other activities involve little or no planning, such as surfing or a game of cricket on the beach.

10.1.1 Stress management and relaxation

Feelings of anxiety and stress are increasingly common in society today. Some of the reasons for these feelings include the following.

- **Urbanisation** has led to individuals and communities being subjected to overcrowding and pollution. Large cities can be lonely places to live, particularly for elderly people, migrants and people from country areas forced to move to the city to find employment.
- Unemployment contributes to higher stress levels, with many individuals suffering low self-esteem, poverty and family pressures as a result of being unable to find work.
- Increased responsibility in the work force means working longer hours, commuting greater distances to work and experiencing traffic delays. All of these factors lead to less time at home with the family.
• Social changes, including changing traditional family roles and family breakdown, contribute to the stress levels of members of our modern society.
• Disadvantaged groups may experience discrimination and harassment, as well as the problems associated with living in cities, drug abuse, poverty and unemployment.

Young people may have additional areas of stress in their lives, possibly caused through:
• pressures from school or parents to achieve
• breakdown in relationships
• confusion about their sexuality
• conflicts with peers and the desire for acceptance.

Participating in outdoor recreational activities is often seen as an escape to the outdoors and an opportunity to ‘re-create’ yourself. Interacting with the natural environment generally means fresh, unpolluted air and feelings of relaxation or excitement that can help to distract an individual from their daily life and pressures. The benefits for stress management are that the individual removes themself from the areas of stress in their lives. For many in our community, the outdoors is a wonderful place to do this.

10.1.2 Enjoyment, challenge and excitement

Participating in many forms of outdoor recreation offers opportunities for considerable enjoyment. Some individuals may find outdoor recreational activities to be fun because they are relaxing, while others may enjoy the strenuous and challenging nature of other activities.

Many outdoor recreational activities, such as rock climbing, mountaineering and white water canoeing, involve considerable challenge and risk. The element of risk inherent in many of these activities provides a thrilling adventure and is an enormous attraction for some participants. The range of environmental conditions associated with participation in outdoor activities, including the shape of the land and weather patterns, adds to the challenge and risk.

The human spirit is capable of considerable challenge and risk taking. Throughout history, people have sought exciting and adventurous outdoor activities through their work or leisure. Individuals and communities have undertaken some incredible explorations into unknown environments, such as space and Antarctica, as well as arduous expeditions in all parts of the world, from Mt Everest to the South Pole. These types of human achievements generate considerable excitement and inspiration in the community. Many individuals deliberately pursue activities that differ from their work environment. More and more Australians are living and working in urban communities, most often in ‘safe’, indoor environments. Therefore it becomes important for these people to interact with nature, test personal limits and participate in activities with adventure in mind.
Inquiry
Challenge and excitement in recreation

1. Reflect on any experiences you may have had in outdoor recreation that filled you with a sense of excitement and challenge. Share these with a classmate.

2. In groups, research and discuss the feats of one or more of the following outdoor adventurers. Consider the role of challenge and excitement in their motivation to complete their expeditions.
   (a) Paul Caffyn (kayaked around the coast of Australia, mostly solo)
   (b) Kay Cottee (first woman to sail solo around the globe) or Jessica Watson
   (c) Sir Edmund Hillary (first successful mountaineering expedition to climb Mt Everest)
   (d) Brigitte Muir (first Australian woman to climb Mt Everest)
   (e) Gerrard Gosens (blind adventurer and Paralympian, climbed Everest and other feats)

10.1.3 Social interaction
Individuals choose activities according to their needs, personality and lifestyle. Some people enjoy the opportunities for social interaction that outdoor recreation can bring. Joining with friends who have similar interests, such as camping or sailing, is appealing to many. Meeting new people while skiing or playing beach volleyball may add value to the activity for other people. Many people enjoy the teamwork, companionship and cooperation required in social recreational pursuits. In contrast, other people prefer to escape from crowds and seek out isolated wilderness areas, often participating in individual recreational pursuits such as cross-country skiing. For these people the solace and isolation can be a valuable spiritual experience.

10.1.4 Appreciation of the environment
The Australian environment offers some of the world’s most spectacular and varied scenery, including alpine, tropical, desert and coastal landscapes. Individuals and communities do not have to venture far from home to enjoy and appreciate some magnificent natural environment settings.

FIGURE 10.4
Magnificent Australian landscapes offer wonderful opportunities to appreciate the natural environment.
Inquiry
Appreciating the natural environment
1. Prepare a list of recreational activities that can be enjoyed in Australia’s varied landscapes. Circle the activities that are within a two-hour drive of your home.
2. Which activities appeal to you? Why?
3. What outcomes could result from participation in these activities?
4. In which activities could a person in a wheelchair or an elderly person participate?

10.1.5 Health and fitness
Many outdoor recreation pursuits involve physical activity and can contribute to the development and maintenance of fitness. The components of fitness developed vary depending on the activity chosen. For example, cross-country skiing is an excellent aerobic activity. In contrast, rock climbing and canoeing develop muscular endurance, while surfing enhances balance and coordination, in addition to aerobic conditioning and strength. More passive forms of outdoor recreation, such as fishing, may offer health benefits generated through enjoyment and relaxation, rather than benefits to fitness.

Fitness requirements for many outdoor recreation activities are quite specific. While regular involvement in sport and fitness activities is beneficial for general conditioning, it may not be adequate to prepare for specialised activities, such as a hard bushwalk over several days. This will test even the fittest person who is not conditioned to carry a heavy pack, walk up and down steep slopes and balance on uneven ground. As with any activity, training needs to closely resemble the ‘real thing’ for effective gains to be made. The dynamic nature of the environment also needs to be considered, with extremes in weather including rain, wind, cold or heat adding demands on the body.

Inquiry
Participating in outdoor recreation
Using the information in the text and your own ideas, think of reasons for participating in outdoor recreation. Prioritise your reasons in the ranking chart below and provide an explanation for each of your choices.

<table>
<thead>
<tr>
<th>Priority chart</th>
<th>Reason for participating in outdoor recreation</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<td>2.</td>
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</table>
10.2 Planning skills

Many outdoor recreational activities involve considerable planning to ensure that participants are safe, enjoy themselves, are adequately prepared for conditions, meet their goals, interact with minimal impact on the natural environment and develop positive relationships with authorities. Most of this planning needs to be done before the trip even begins; for example, finance, rations, equipment and transport. During the expedition, plans may need to be changed due to weather or group capabilities. A successful party needs knowledge and skills to adapt, survive and make alternative plans if necessary.

10.2.1 Environmental planning

Planning for environmental hazards depends on the activity being undertaken and the venue chosen. Local knowledge of weather conditions in the area to be visited is essential. Leaders must consider the hazards of the chosen venue. It is important that the venue is suitable for the ability level of the participants, therefore leaders must have prior experience in the area and research it thoroughly before taking a group of less experienced participants. Equipment suitable for conditions likely to be encountered should be taken.

The type of activity determines the planning for environmental conditions. For instance, a party of sea kayakers may need to take extra supplies in case they are stranded due to high seas for an extended period. Canoeists on a river may finish their trip sooner or later than planned, depending on water levels. Touring cyclists need to take clothing and equipment suitable for all weather conditions, as they may be delayed by strong head winds. Bushwalkers may strike high winds, snow, rain, floods or high temperatures.

CASE STUDY

Caving tragedy
Expeditons in the outdoors are often delayed by poor weather. In some situations, groups are advised to stay where they are, rather than attempt to keep going in very poor conditions. Of course, it is important to be dry, have shelter and sufficient provisions. The following tragic story illustrates how poor weather conditions, combined with poor decision making, can be fatal.

A party of students and teachers became stranded in a cave after heavy rain raised water levels in the cave. The group was delayed and began to worry about their families and the authorities, who would be anxious and waiting for their arrival. Two people decided to get out of the cave to communicate the situation while the others remained in a high part of the cave. Tragically, the two who left the main party drowned as they tried to get out. The rest of the party survived and were rescued.

Inquiry

Planning skills
1. What are the risks associated with caving described in the case study above?
2. What information could have been left with family and authorities before the group set out?
3. How could the tragedy have been prevented?

10.2.2 Emergency management planning

There are important safety risk management and organisational factors that must be addressed before and during a trip in order to manage the group’s safety. In any outdoor recreational trip, it is essential that the group:

• stay calm at all times
• assess each situation logically.
Thorough research, planning, clear thinking and experience can enable a group to survive the toughest conditions. Panic can cause people to make mistakes. These mistakes may lead to tragedy for an inexperienced group.

Many outdoor recreational activities involve elements of risk. While the risks involved often make the activity more appealing and challenging, it is important that participants ensure that risks taken are controlled or calculated and individual needs and abilities within the group are considered. This means that although the activity itself may be potentially dangerous, the level of danger can be reduced by ensuring that:

- equipment is regularly checked to ensure it is safe and suitable to the environmental conditions
- participants have the necessary physical and mental skills needed to complete the challenge
- routes are carefully planned
- participants are skilled in navigation and have options for early exit if the weather turns bad or someone is injured
- communication modes with external authorities are established, including mobile phones, emergency contact numbers and a contingency plan to notify authorities if help is needed
- participants recognise their own capabilities. Failure to do this can place the whole group in danger.
- at least one member of the party is qualified in first aid
- the group should carry a comprehensive first aid kit and individuals should carry their own first aid supplies.

A group may need to use an escape route if:

- the weather changes
- participants are not coping with the terrain
- an injury is suffered.

An escape route provides the group with an alternative way out of the area. Thorough planning of the route to be taken is paramount for overnight trips. Leaders should know the area well and be familiar with road access points and some alternative routes. If all participants are new to an area, they should study maps carefully before leaving and talk to the National Parks and Wildlife Service, other experienced people who know the area well, or local residents to familiarise themselves with the terrain and access points.

**FIGURE 10.5** Groups should establish safety procedures and understand in advance how safe the environment is for the activity.

Application

**Using escape routes**

Read the following account and study figure 10.6, which shows the route planned for an inexperienced canoeing group attempting their first overnight expedition.

A canoeing group had participated in some short trips to learn techniques and become familiar with the lake conditions. They were well prepared with food, camping supplies in waterproof drums and bags, and good quality canoeing equipment. They set out at 9.00 a.m. from point A when the weather was fine and mild and the
water calm. The group kept together and had lunch at B before exploring the creek at C and then heading to D for the overnight camp. The leaders had noticed some high level cloud building up from the south during the day and thought the weather could change overnight and into the next day. They were right. After a peaceful overnight camp the group awoke early to drizzling rain, cold temperatures and strong southerly winds. The winds had made the water in the lake quite choppy, very unsuitable for the open Canadian canoes that most of the inexperienced members of the group were paddling in. The wind change meant that the group would be heading straight into the strong winds for the return journey, which was not good for beginners.

The group leaders held a conference and decided to use the escape route at E that linked to a major road. This would still involve some canoeing but would be in relatively sheltered water and the group would be moving in the same direction as the wind. Two of the leaders who were experienced paddlers returned to point A and drove the vehicles around to escape route E to collect the group. The wind and rain increased steadily throughout the day and the lake became extremely turbulent by the afternoon. The group averted a potential tragedy by being prepared and using the escape route.

**Inquiry**

**Planning an escape route**

1. Identify the parts of the account in the application above that indicate the group was well prepared.
2. The leaders made the correct decision to use the escape route. What may have happened to the group if they had decided to continue with the trip as planned?
3. Identify the pressures that the leaders may have faced in making the decision to cut short the trip. Consider the opinions of the participants and parents.

**First aid preparation**

All groups should have first aid knowledge. It is preferable that participants be trained to senior first aid level. Specific emergencies in outdoor recreation expeditions could include:

- snakebites
- cuts and grazes
- bites and stings
- hypothermia
- hyperthermia
• sprains
• strains
• blisters.

The group needs to have the knowledge and skills to cope with such problems.

A comprehensive first aid kit should be carried by the group. Each member of the group should also have their own first aid supplies. For camping, overnight canoeing or bushwalking for a group of five to six, the group first aid kit should be stored in a waterproof, durable container. It should contain:

- triangular and crepe bandages
- cotton bandages (to secure dressings to wounds)
- two packets of wound closures (steri-strips) for cuts
- sterile nonstick dressings
- one roll of tape (secure bandages, tape joints)
- scissors, tweezers, safety pins
- antiseptic lotion and insect repellent
- small first aid manual
- instant cold compress
- a pain relief cream in case of stings.

In addition to the group first aid kit, every person should carry a personal first aid kit containing the following items:

- paracetamol tablets
- moleskin or foam strip for blisters
- survival blanket
- sunscreen
- bandaids
- personal medication, such as an asthma relief puffer
- antiseptic cream.

10.2.3 Food and water considerations

The length and type of the expedition, possible weather conditions and the season will determine the consideration given to food and water. It is worth remembering that most humans can live for up to three weeks without food, but will survive for only one to three days without water, depending on the temperatures. If the temperature is 20°C, a person would need 1.2 litres of water if resting in the shade, whereas if the temperature increased to 30°C the need for water increases to 2.5 litres.

At least one day’s supply of emergency food should be carried for most expeditions; more should be taken for extended trips. Many expedition foods require water for cooking (for example, to cook rice) and this needs to be taken into consideration. Unfortunately in many places, water from rivers is not safe to drink, due to pollution caused by sewage and domestic and industrial waste from humans. The water therefore needs to be boiled for 10 minutes or purified using soluble iodine or commercial tablets such as Puritabs, which tend to have a strong chlorine smell and taste. Where possible, overnight camps should be near a reliable water supply to save carrying more than 1.5 to two litres per day each. Route planning should therefore include reliable water sources.
It is essential that participants prepare a balanced intake of food during extended activity. Kilojoule intake needs to be high in physically demanding activities to provide energy for activity and to keep the body warm. Carbohydrates should be the dominant food group consumed, followed by protein and fats. Vitamins and minerals are also essential. Menus should include meals that are nutritious, light to carry and quick to prepare. Packaging should be minimised and only foods that do not require refrigeration should be taken. If the expedition is bushwalking with packs, keeping weight to a minimum is vital for comfort and well-being.

Food should be grouped into meals of equal weight and distributed evenly among the group to carry. It is therefore very important to consider the size and weight of food packaging. Weight should be kept to 750–900 grams per day per person when carrying all food in a backpack.

Rice, pasta and cereals can be carried in plastic bags that can be easily compressed and carried out or used to carry rubbish. Spreads like honey can be carried in small plastic containers or in tubes that are available from camping stores. Scroggin should be packed in small snaplock bags, one for each day. Tins should be small and kept to a minimum, as they are heavy.

When selecting food and planning menus for the outdoors, it is necessary to consider the following questions.

- Is the food nutritious?
- Is the food lightweight?
- Is it easy to prepare?
- Will you enjoy the food — do you like the taste?
- Is packaging kept to a minimum?

Consider the following suggestions in food selection and menu planning.

**Breakfast:**
- cereal, porridge, muesli
- fruit — fresh for the first few days then rehydrated dried fruit or packaged snack-pack or tinned fruit (can be heavy)
- muffins, bread, pita bread
- baked beans, eggs (will keep for two days if carefully packaged).

**Lunch:**
- bread, dry biscuits like Ryvita or pita bread
- cheese (processed cheese with preservatives is not as healthy as fresh cheese but keeps better)
- tinned salmon, tuna or salami
- toppings including chutney, peanut butter, jam, honey
- fast-cook noodles or soups.

**Dinner:**
- use rice, pasta or legumes as a base and create a sauce using vegetables, tomato paste, curry powders, miso, garlic, herbs or powdered milk with cheese
- use fresh vegetables that will keep for a few days; for example, carrots, onions, zucchini and garlic
- custard, packaged cheesecakes, tinned puddings, fruit cake and rehydrated dried fruit (soak overnight and lightly simmer in water) make tasty desserts.

There are many commercially available ready-made meals such as pasta and rice meals to which you add water or powdered milk and simmer. These are convenient and quick to prepare, but are often high in salt and fat and low in nutrients. With a little more preparation you can add fresh vegetables or create your own pasta and rice dishes which are a healthier alternative for a main meal. For longer expeditions, many people use freeze-dried or dehydrated meals; however, they often lack flavour and nutrients and are expensive. See table 10.1 for a sample menu for a three-day bushwalking or canoeing expedition.
Application

Expedition food

Choose one of the following recipes and make the meal at home. Evaluate its suitability as an expedition food.

Minestrone soup
handful of fast cooking noodles
1 tspn vegetable stock powder
freeze-dried kidney beans
sachet of tomato paste
parsley flakes, dried basil and oregano
fresh garlic and onion
parmesan cheese
Mix dry ingredients at home and carry in a snaplock bag. In camp, chop the onion and garlic. Add all of the ingredients and two to three cups of water. Simmer for three to five minutes until the noodles are tender.

Lentil tomato stew
½ cup split red lentils
handful of dried noodles
sachet of tomato paste
parsley flakes
1 tspn stock powder or a stock cube
pepper
fresh garlic and onion
Combine all dry ingredients in a snaplock bag at home. In camp, chop the onion and garlic. Boil two to three cups of water, then add all of the ingredients. Simmer for 10–15 minutes.
Macaroni cheese and tuna

1 cup macaroni
1 tin tuna
1 cup grated cheese
½ cup milk
parsley flakes
garlic and onion

Chop the garlic and onion. Bring three cups of water to the boil and cook the macaroni. Drain and add the other ingredients. Return to the heat for two to three minutes. Stir continuously.

Rice curry

1 cup rice
fresh onion and carrot chopped in camp
curry powder
handful dried apricots, sultanas, raisins, almonds, cashews, peanuts

Combine all of the ingredients except the vegetables in a snaplock bag at home. In camp, boil three cups of water. Add the rice mixture, chopped onion and carrot and simmer for 15 minutes. Stir frequently.

Pasta with tomato vegetable sauce

tomato paste (sachet or tube)
fresh carrot, zucchini, onion, mushrooms, garlic chopped in camp,
or dried variety
pepper, oregano, basil
pasta
parmesan cheese

Chop all of the vegetables. Add the tomato paste and herbs and simmer until soft. Boil three cups of water in another pot and boil the pasta for 10 minutes. Combine with the sauce. Sprinkle with cheese.

Damper

1 cup flour
1 tblspn butter
½ cup milk

Rub together the butter and flour. Mix in the milk, then form a dough. Use a flat surface to knead the dough for several minutes. Add extra flour if it is too sticky, then wrap in foil if cooking in the fire or place in a pot and cook over low heat for 30–40 minutes. Alternatively, wrap the dough around a stick like a rope and hold over fire. Try adding dried fruit and nuts, honey, cheese, onion and so on to achieve the taste you want.
TABLE 10.1 Sample menu for a three-day bushwalking or canoeing expedition

<table>
<thead>
<tr>
<th>Meal</th>
<th>Day one</th>
<th>Day two</th>
<th>Day three</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>at home</td>
<td>porridge or Weetbix with warmed powdered milk</td>
<td>porridge or other cereal container of fruit</td>
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<tr>
<td></td>
<td></td>
<td>small container fruit</td>
<td>baked beans or spaghetti muffins</td>
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<tr>
<td></td>
<td></td>
<td>muffins with butter, vegemite or honey</td>
<td>tea, coffee or Milo</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tea, coffee or Milo</td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td>prepacked sandwich</td>
<td>pita bread with cheese, chutney, tinned fish</td>
<td>dry biscuits, cheese, chutney, salami</td>
</tr>
<tr>
<td></td>
<td>apple</td>
<td>or salami</td>
<td>orange or apple</td>
</tr>
<tr>
<td></td>
<td>muesli bar</td>
<td>orange or apple</td>
<td>hot or cold drink</td>
</tr>
<tr>
<td></td>
<td>fruit drink</td>
<td>hot or cold drink</td>
<td></td>
</tr>
<tr>
<td>Dinner</td>
<td>Cup-a-soup pasta</td>
<td>Cup-a-soup satay rice with peanut butter,</td>
<td>hopefully you will be safe at home</td>
</tr>
<tr>
<td></td>
<td>tomato paste</td>
<td>onion, potato, carrot, sultanas, dried</td>
<td></td>
</tr>
<tr>
<td></td>
<td>chopped carrot, onion, zucchini</td>
<td>apricots</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tin of tuna</td>
<td>fruit cake and custard</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snacks</td>
<td>scroggin mixture of dried fruit,</td>
<td>scroggin mixture</td>
<td>scroggin mixture</td>
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<tr>
<td></td>
<td>chocolate and nuts</td>
<td>apple or orange</td>
<td>apple or orange</td>
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<tr>
<td>Emergency</td>
<td>two rice or pasta packs</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>two-minute noodles</td>
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<td></td>
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<tr>
<td></td>
<td>rolled oats or Weetbix chocolate</td>
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</table>

10.2.4 Resources for safe participation

The choices made about the clothing and equipment taken on an expedition can save lives. Equipment needs vary depending on the expedition undertaken. In general, outdoor recreational activities demand lightweight, durable equipment and clothing that protect you from environmental conditions. It is important that the loads carried are manageable, therefore all equipment needs to be carefully chosen. Quality equipment is often expensive; however, it will generally last a lot longer and be more comfortable than cheap equipment. It is important to be selective when packing and consider what you really need. It is vitally important to minimise weight and it is worth remembering that you can still enjoy yourself and meet the goals of the expedition, without a lot of unnecessary gear.

10.2.5 Legal and administrative requirements

Expeditions may involve travel on private land or in national parks. If this is the case, participants need to consider the following:

- booking of camp sites
- permission from the land owner to drive, camp, ski, walk, paddle or cycle on their land
- entry permits
- attention to detail; for example, leaving camp sites clean, leaving all gates as you find them, respecting privacy and avoiding disturbing domestic plants and animals.

If a leader is acting in an official capacity (for example, if they are being paid by the participants) or has a duty of care over the group, such as a teacher with students, they are accountable for the planning and management of the trip. In this situation, the leader could also be held legally responsible if something went
wrong on the expedition and they were found to be negligent. Most often negligence involves poor planning and decision making and can be avoided by having a leader who is qualified or experienced in the activity. The leader should:

- conscientiously check all equipment, routes and weather
- know the capabilities of the party
- have first aid qualifications
- be aware of medical conditions in the group
- ensure that all required permissions have been sought through liaison with appropriate authorities and trip intention forms have been lodged. Included here will be:
  - permission notes if taking school students or people under the age of 18
  - risk assessment forms; that is, forms detailing areas of possible risk and measures that will be adopted should problems occur (schools)
  - trip detail forms providing information about where the group is going, how long they expect to be away, mobile phone contact numbers, modes of transport and other relevant information.

**Inquiry**

**Expedition equipment**

The growth in manufacture and sales of outdoor equipment has boomed in the last decade or two. Some of the early adventurers would be amazed to see the huge range of available gear on the market today. Research an expedition from the past and provide details of the equipment used.

Provided that it is cared for properly, good quality equipment is a good investment for the years to come and may even last a lifetime. All equipment should be stored in a cool, dry location and completely dried off after use. Synthetic clothing will melt and leather boots may crack if placed close to direct sources of heat. Mud should be removed from packs and tents.

Essential equipment for bushwalking expeditions includes the following:

- comfortable, well-fitting rucksack
- waterproof pack liner (a strong garbage bag is suitable)
- warm sleeping bag that is compact and light to carry
- sleeping mat (foam mat is suitable, or ‘therm-a-rest’ for a really comfortable sleep!)
- lightweight tent with sewn-in floor and waterproof fly
- lightweight cooking and eating utensils
- lightweight cooking stove (metho burning trangia is ideal) and fuel
- torch
- plastic bags for rubbish
- toilet paper and trowel for burying faeces
- fire lighting kit (candle, matches)
- map, compass, whistle, signalling mirror, pencil and notepad
- first aid supplies
- general purpose repair kit (shoelace, cotton and strong needle, waterproof tape)
- food, including at least one day’s emergency rations
- sunscreen and lip balm
- camera
- water (each person will use 1.5 to four litres per day depending on the weather conditions).

A clothing check list should include:

- wet weather jacket
- waterproof overpants (these may be needed for wet weather or snow expeditions)
• warm jacket or jumper that is not bulky
• beanie and gloves, as well as a sun hat and sunscreen
• trackpants
• thermal underwear. These are made from synthetic material that is designed to dry quickly and keep you warm, even when wet.
• shorts, T-shirts to walk in
• underwear
• swimmers
• thick socks
• lightweight shoes for around camp (optional)
• comfortable boots. The style of boots chosen largely depends on personal choice and the location of the walk. For many areas, lightweight canvas sandshoes or soft leather boots are sufficient. However, in snow, wet or muddy terrain, full leather boots that enclose the ankle are necessary. The addition of gaiters that attach onto the boots and protect the lower leg can be beneficial in these conditions.

The choice of clothing on an expedition needs to be carefully considered, with proposed weather conditions in mind. The weather in New South Wales tends to be unpredictable and participants in outdoor activities need to be prepared for sudden changes in weather. In order to adjust to weather conditions, it is advisable to wear layers of clothing that can be easily shed or added. A wet weather jacket is always advisable and in cold weather it is best to wear at least three layers of clothing rather than one bulky layer, along with beanie, gloves and warm socks. In this way, your body heat is trapped within the layers. In warm weather, light coloured clothing needs to be worn to reflect the heat, along with hats, sunglasses and sunscreen.

**FIGURE 10.10** Protective clothing suitable for a bushwalking expedition
FIGURE 10.11 Common camping equipment

Care must be taken when packing a rucksack to ensure comfort. The dark items shown in the rucksack are the heaviest.

FIGURE 10.12 An example of a comprehensive equipment list distributed to participants by group leaders

Canoe equipment
- Canoe in good condition with flotation and end loops
- Paddle/s to suit canoe/kayak
- Spare paddle

Personal canoeing equipment
- Buoyancy vest
- Wetsuit (optional)
- Spray jacket
- Helmet (white water)

Camp clothing
- T-shirt
- Flannelette shirt
- Long sleeved shirt (sun protection)

Camping equipment (plan this with your paddling partner)
- Tent
- Sleeping bag and mat
- Water bottle/bladders (four litres per day per person)
- Fire lighting kit
- Map, compass, pencil

Canoeing safety check list
- Repair kits (wide tape)
- Waterproof bags/drums
- Ropes (to secure drums, etc.)
- Spray skirt (white water kayaking)
- Shorts, swimsers
- Old sandshoes/neoprene boots
- Sunglasses with strap
- Tracksuit pants
- Thermal underwear
- Underwear
- Torch/candles
- Billy can/s
- Trangia
- Cup, knife, spoon, plastic bowl
- Toilet paper, towel
- First aid kit

Leader should carry rescue equipment (rope, karabiners, knife, prusiks, throw bag)
- Thermal top/woollen jumper
- Cap/straw hat
- Waterproof jacket (can use spray jacket)
- Beanie

Toothbrush and paste, small travel bag
-Personal toiletry items (small and compact)
-Insect repellent
-Fishing gear (optional)
-Camera (optional)

Remember: keep gear light and compact
FIGURE 10.13 A leader has a duty of care over the group.

Use the leadership style appropriate to the situation.

Ensure that detailed notes of the journey, including trip intention forms, are left with a responsible adult.

A leader should...

Liaise with land owners and/or appropriate authorities prior to departure.

Undertake thorough preparation, including consideration of weather/escape routes.

Have appropriate qualifications and considerable experience.

Communicate effectively.

Ensure participants have necessary equipment, fitness and skills to complete expedition.

Inquiry

Guidelines for bushwalking in schools

Investigate the New South Wales Department of Education’s guidelines for the safe conduct of sport and physical education in schools with reference to bushwalking. Use the Bushwalking safety weblink in the Resources tab.

1. In what areas do you need instruction before you participate in an overnight hike?
2. What is a risk assessment and why is it necessary?
3. What equipment do you require for an extended walk?
4. What is the maximum weight of a loaded pack to be carried by an individual on an extended walk by school students? Why do you think the Department of Education has made this recommendation?
5. What additional safety considerations can you identify in this document? Discuss these with the class.

Resources

Weblink: Bushwalking safety

10.3 Camp site selection

It is worthwhile spending time in planning and searching for a good camp site on an expedition. If the weather becomes unfavourable, the group could end up staying longer than expected. Effective planning is essential to ensure that groups leave enough time to set up camp in the daylight. A comfortable camp can increase the morale of any group and is important for group dynamics. Most often it is difficult to find a spot that encompasses all the points mentioned below. Sometimes compromise is needed.

10.3.1 Geographic, environmental and climatic considerations for establishing a camp site

Consider the following points when choosing the ‘perfect spot’ for your camp. Also consult the bushwalkers’ code (see subtopic 10.4) to ensure that your camp site has minimal impact on the natural environment.
Water
• Is there adequate water nearby?
• Is the site at least four metres above the river bank in case of heavy rain? Some rivers can rise much more than this and rapidly — look for signs of debris in trees. It is also worth remembering that you may not get rain where you are camping, but if it is raining higher up in the catchment area, unexpected flooding can occur.

Site
• Ensure that the ground is flat and free from sticks, stones, animal nests or burrows and is not in a drainage area. Also be careful of camping under trees with dead limbs that may fall.
• Is there a fairly open area with interesting views? Is the area slightly elevated? Does the site have grass or sand — clay will turn to mud during rain! Old water channels should be avoided.

Fires
• Are there fire bans in operation? If not, is wood plentiful?
• Fires are not permitted in many areas that are sensitive; for example, alpine regions or in heavily used areas. Potentially they can impact on the area by causing significant disturbance to the natural ecosystem.
• Is an existing fireplace available? (See notes in the bushwalkers’ code, subtopic 10.4, for more information about fire management.)

Toilet facilities
• Are there toilet facilities? If not, are there suitably private places for people to use?
• Can you successfully set up a group latrine?
• Position the toilet well away from the water supply and down wind from camp. Human excrement can pollute rivers and spread disease. (See notes in the bushwalkers’ code, subtopic 10.4, for guidelines on managing human excrement.)

Camp site waste disposal
• Carry out everything that is carried in. This is a simple rule that is easily obeyed. (See notes in the bushwalkers’ code, subtopic 10.4, for more information.)
• Never be too proud to pick up other people’s rubbish. It improves the area, teaches others and helps you to care for the environment.

Privacy and shelter
• Is the area secluded? Many people seek a wilderness experience and are unhappy if other groups are close by.
• Does the site provide shelter from prevailing winds? Will you get sun or shade? In winter it can be important to get morning sun to get the group going and dry out tents, but in summer some afternoon shade is advisable.

Hazard
• Are there swampy areas that may attract mosquitoes?
• Are there any potential hazards like cliffs, dead trees, falling rocks and mine shafts?
Inquiry
Camping safety
Use the information above and the Camping safety weblinks in the Resources tab to create a PowerPoint or Prezi presentation that could be delivered to novice campers.

10.3.2 Tree fall evaluation
While the risk of injury from falling trees and their branches is minimal during good weather, the potential for injury and even death increases considerably during heavy rain and wild winds. Tree fall evaluation should be included in the risk assessment made prior to conducting expeditions. Students and other campers should be given training in safe camp site selection strategies prior to leaving and choose established camp sites where possible. Tents should ideally be pitched in open spaces, well away from large trees and overhanging branches that can snap anytime, particularly in strong winds.

Inquiry
Planning for hazards
1. In 2005, a 16-year-old schoolgirl on a school camp was crushed by a tree while she slept during a storm. What features would you look for when making a camp site selection that might enhance comfort and safety?
2. How might you be more aware of changing climatic conditions?
3. What prior planning skills might help you avoid dangers associated with sudden weather changes?

10.4 Conservation skills
All campers have a responsibility to have minimal impact on the environment. Participants need knowledge and skills in relation to waste management, erosion control, protecting flora and fauna and managing fires. Waste in the form of human excrement and rubbish from food packaging is potentially disastrous for the natural environment. Everything that is carried in, must be taken out. If you find rubbish left by others, clean it up as you go. For large amounts, report it to authorities such as the National Parks and Wildlife Service. Before leaving your camp site ensure that all rubbish is cleaned up, toilet pits are filled in and fires are fully extinguished. In some countries, camp fires are banned and faeces must be carried out in plastic bags.
SNAPSHOT
The Bushwalkers' Code

Preamble
Bushwalking is a highly rewarding activity made even more enjoyable when engaged in safely, respectfully, inclusively, and in a manner that preserves nature for our future enjoyment.

Bushwalking NSW publishes this Bushwalker's Code to make the principles and actions that bushwalkers use to plan and conduct rewarding outdoor adventure available to all; so that everyone may continue to experience the greatest enjoyment of bushwalking in NSW, the ACT, and beyond.

We leave no trace
- We use existing tracks where possible and avoid creating multiple tracks which lead to erosion.
- We avoid easily damaged plants and places such as peat bogs, cushion moss, swamps and fragile rock formations.
- We remove from the bush all rubbish, including food scraps, and bury human waste well away from watercourses.
- We do not remove plants or rocks from National Parks.
- We do not disturb nor feed wildlife.
- We do not pollute the ground and waterways with soaps and detergents.
- We carry cooking equipment, or use existing fireplaces when possible, and do not scar the landscape with fire rings.
- We comply with fuel-stove only requirements.
- We leave campsites in a pristine state.

We preserve Australia's bio-security
- We proactively seek to protect the natural environment from the negative impacts of pests, weeds and diseases.
- We clean our clothing, equipment, cars, wheels and vessels to prevent the spread of pathogens and diseases that threaten bio-security.
- We report significant or unusual pests, weeds and diseases.

We prevent incidents
Because incidents and rescues have the greatest impact on the environment and people:
- We plan and prepare fully.
- We share our trip intentions.
- We act safely.
- We are self-reliant.

We take responsibility for acting safely
- We always carry appropriate clothing and equipment for the nature of the activity engaged in.
- We carry first aid kits and are trained in first aid appropriate to our (often remote) activities.
- We walk in groups of three or more so that there are sufficient people to summon help in an emergency.
- We do not rely solely on GPS systems, but carry a map and compass.
- We know how to navigate with map and compass according to the difficulty of the activity we are engaged in.
- We do not rely on mobile phone coverage for dealing with an emergency but carry a Personal Locator Beacon (PLB) and/or satellite phone when appropriate. A satellite phone has global coverage and means we can inform emergency services of our needs.
- We consider battery life of electronic devices and take a recharger if necessary.
- We register all Personal Locator Beacons (PLB) with AMSA and groups always carry a PLB in wilderness areas.
- We prepare an incident response and exit plan prior to each activity in case of accident or emergency.
- We carry appropriate equipment that may be needed in case of accident or emergency.
- We check for adverse weather, flood, fire, tides, transport, and access issues when planning, and before we head out.
- We check the safety status of our destinations before entering, observe the safety instructions of park rangers, and do not enter closed National Parks.
• We advise the appropriate authorities, responsible friends or relatives of our walking plans and intentions so that emergency services can be alerted in case of our failure to return from an activity. We inform those authorities/persons when our group has safely returned.
• We only light fires when it is safe to do so, and ensure they are fully extinguished.
• We ensure the safety and wellbeing of all dependents entrusted to our care.
• We engage in bushwalking activities unimpaired by the consumption of alcohol or use of drugs.

**We are self-reliant**
• We carry sufficient food and water in order to survive an unexpected delay in returning from the bush.
• We wear and carry appropriate clothing and equipment for our comfort and safety in expected weather conditions. We also carry gear to suit the worst possible conditions we are likely to encounter.
• We ensure we have sufficient training, experience and expertise to safely carry out our planned activity.

**We respect fellow bushwalkers**
• We welcome people from all walks of life irrespective of gender, age, race, religion, culture, colour, sexuality; and behave in a harmonious manner.
• We appreciate difference and welcome learning from others, building relationships based on mutual respect.
• We do not tolerate bullying, harassment or discrimination in any form.
• We encourage, respect and support our activity leaders, as competent and motivated leaders are essential to the success of our activities.
• We respect the right of our activity leaders to accept or reject walker applicants for specific activities based upon the assessed degree of difficulty, and the assessed competence of individual walkers.
• We respect the right of bushwalkers to enjoy the peace and quiet of the bush without undue disturbance from technology.
• We help fellow bushwalkers in need, in situations such as; assisting with emergency communications, offering medical aid for which we are qualified, carrying the gear of an injured person, or sharing equipment.

**We respect Indigenous culture**
• We acknowledge the traditional owners of the land on which we walk.
• We treat sites of spiritual or cultural significance with respect.
• We obtain permission from traditional landowners or the relevant land manager to visit sensitive areas.
• We do not damage Aboriginal rock art or camp under overhangs that contain Aboriginal rock art.

**We respect landowners**
• We respect landowners and do not trespass on their land.
• We leave farm gates as we find them.
• We respect the rules of National Parks, and other land managers, such as camping conditions, maximum numbers in wilderness areas, permitted activities and park closures.

**In case of emergency**
• If in distress contact the emergency services on **Triple Zero (000)**.
• If you are in distress and need assistance and have no other means of communication, set off your Personal Locator Beacon (PLB). Remain near your PLB and be prepared with food and shelter to wait for a response. This may take several hours, or longer depending on weather conditions, and if a ground team needs to reach you. Make yourself visible from the air with a brightly coloured sheet of fabric, or if safe, make a smoky fire. Extinguish any fire entirely when the helicopter approaches. Pack up and secure your gear against the helicopter downdraft so your gear is not lost and the rescue site is left as untouched as possible.

See the Bushwalking NSW website for further guidance and information: www.bushwalkingnsw.org.au.

**Bushwalking NSW**

Keep exploring, be amazed!


### 10.4.1 ‘Leave no trace’ camping

Participation in outdoor recreational activities must be accompanied by a respect for the natural environment and a willingness to interact with nature with minimal impact. Individuals who participate in activities in the
natural environment have a responsibility to ensure that they don’t damage, destroy or change it. Many of our native plant and animal species are facing threat and extinction from diminishing habitats and we must be vigilant in minimising disturbance. For example, when setting up a camp site, a clear area should be chosen rather than clearing vegetation. When rock climbing, vegetation or animal and bird nests should not be destroyed to make it easier to complete the climb. Rubbish should be removed after camping — the only things that should remain behind are footprints!

### 10.4.2 Minimal impact practices

Extended bushwalks offer opportunities to explore remote wilderness locations with your ‘house on your back’. In order to enjoy the wilderness experience and ensure the enjoyment of others who use the area after you, it is vital that attention is paid to conservation issues to minimise the impact of your party on the area. Particular attention needs to be paid to camp fire control, waste disposal and disturbances to vegetation and flora.

### 10.4.3 Ethical issues

People who participate in outdoor recreational activities have a wide range of attitudes and values towards conservation. They all may feel that they are conserving and protecting the environment, but in different ways. For example, some people believe that camp fires are a waste of valuable timber resources and scar the landscape. Therefore, they always carry portable stoves. Other people see benefits in using a renewable resource such as timber for warmth and cooking rather than using fuel. They may enjoy the atmosphere of the camp fire. Some activities are more conducive to conservation than others. For instance, canoeing or bushwalking could be seen to be more environmentally friendly than water skiing or jet skiing, which impact on the environment through noise and increased wave action on the banks. The choice of activity generally reflects the values and attitudes of the participants in relation to the environment.

In all outdoor recreational activities, people have a responsibility to ‘tread lightly’ and ensure that their activities have a minimal impact on the environment. Consideration for waste disposal, fire hazards, biological disturbances and erosion are responsibilities of participants in outdoor activities. It is essential that these things are treated responsibly if we are to conserve and preserve our natural environments for future generations to enjoy.

#### Application

**Ethical issues**

Conduct a class debate on one of the following topics that relate to conservation, ethical issues and the environment.

(a) Horse riding and four-wheel driving have no place in national parks.

(b) Our national parks should be protected by permit systems and a fee structure to limit the number of visitors and help preserve the parks.

(c) Speed boats, jet skis and trail bikes should be restricted to less fragile areas to minimise harm to the natural environment from erosion and noise pollution.

(d) Alpine resorts, such as Thredbo and Perisher, should have been built below the snow line, rather than in the main range, to minimise disturbance to vegetation and pollution in waterways.
SNAPSHOT

Selling adventure

I recently returned to [a] cliff after many years of absence only to be firstly angered then dismayed at the transformation of what had been a wilderness climbing area. At one end of the cliff is a cemented series of benches and retaining walls. At the other, a picnic bench is set in the middle of a large cleared area which had been cut out of the scrub with what I deduced to be a whippersniper. The same tool had been used to slash new tracks along the clifftop, which is now littered with bolts and other ironmongery used in commercial abseiling.

At one point the clifftop is totally denuded of vegetation, as the result of intensive use. At the same site, in what I regard as an act of wilful vandalism rarely encountered in the world of outdoor recreation, ironstand bands . . . had been smashed off and other sharp edges cemented over, presumably in the attempt to reduce the wear and tear on abseil ropes . . . I then discovered that the character of classic climbs had been fundamentally transformed by ring bolts and belay chains installed to facilitate the techniques of commercial rockclimbing operations . . .

Through the selling of adventure, many more people now have access to the experiences and skills of outdoor activities. In many ways, this is a welcome development, because it makes those experiences available to anybody who chooses to use their money in this way. By introducing larger numbers of people to new ways of relating to the natural world, a wider environmental appreciation may be fostered.

Source: Dr Ben Maddison is a Senior Lecturer in History at University of Wollongong. His most recent book is Class and Colonialism in Antarctic Exploration 1750–1920 Pickering & Chatto, 2014.

Inquiry

Impacts of recreational activities

1. Read the snapshot titled ‘Selling adventure’. Identify the positive and negative aspects of commercial adventure operations in our wilderness areas.
2. Discuss ways in which commercial adventure companies could minimise their impact on natural environments (for example, group sizes, toilet practices).
3. Contact commercial adventure companies in your local area, or find them on the internet. Ask them what measures they take to minimise the impact of tour groups on the environment.

Inquiry

Camp site planning and behaviour

Examine the following statement: ‘Take nothing but photos and leave nothing but footprints. Leave the area cleaner than you found it.’ Critically examine this statement in light of the photograph below.

FIGURE 10.17 Camp site behaviour should include respect for the environment and consideration for other users.
10.5 Navigational skills

The ability to navigate is an essential bushcraft skill. Many people seek wilderness areas without roads and tracks and therefore need to have the skills to find their way using a map and compass. Skills of navigation include observation, concentration and knowledge of map and compass work. They are best developed through practice. The use of satellite navigational equipment (global positioning systems or GPS) is increasing. However, the ability to read a map and use a compass is still essential.

10.5.1 Check list for navigation

To successfully find your way in the bush, you should learn to:

- understand map scales and how to measure distance
- recognise symbols used on topographic maps
- understand how contour lines represent the height and shape of the land
- be able to calculate grid reference bearings to give location
- orientate your map to match the real world
- recognise and understand true north, magnetic north and grid north
- know how to take a bearing
- understand how to take magnetic variation into consideration when calculating bearings.

The following equipment is needed for navigation:

- compass
- map (in a waterproof bag or specially designed map cover)
- whistle
- notepad and pencil.

10.5.2 Map reading

Maps are models or pictorial representations of the Earth’s surface. They are made using information from photographs taken of the Earth’s surface from aircraft flying overhead. Features on the Earth’s surface are represented by symbols on the map.

Maps used in outdoor recreation are topographic maps that have standard symbols. They contain information about:

- the natural landscape, such as hills, rivers, forests and swamps
- the artificial landscape or constructed environment, including towns, roads, railways and bridges.

**Scale** is the ratio between the distance measured on a map and the actual distance measured on the Earth’s surface. Topographic maps generally state scale as a line scale as well as a representative fraction or ratio. The line scale is a numbered line showing how many kilometres are represented by a centimetre on the map.

Most topographic maps used for outdoor recreation have a scale of 1:25 000, which means that one centimetre on the map is equal to 25 000 centimetres on the land. Two centimetres on the map is equal to 50 000 centimetres; therefore, four centimetres on the map represents one kilometre.

The map scale is used to measure distance. Smaller scale maps show less detail and may be used for a road map (1:100 000) or country map in an atlas (1:500 000).
Application
Using a topographic map

Examine the legend below that shows the symbols commonly found on a topographic map and what they represent.

1. Identify the symbols for (a) swamps, (b) cliffs and (c) areas of vegetation.
2. Identify the symbols for (a) sealed roads, (b) unsealed roads and (c) mines.

Contour lines join all places of equal height on a map, above sea level. They provide information about the shape, steepness and height of the land. When the lines are close together this means that height is gained (or lost) quickly and therefore the slope is steep. When contour lines are spaced further apart, then the land is gently sloping or even flat. Evenly spaced contours indicate uniform slopes.
### FIGURE 10.20  A range of land forms and contour representations

<table>
<thead>
<tr>
<th>Name of land form</th>
<th>Contour pattern</th>
<th>Explanation of contour pattern</th>
<th>Side view</th>
<th>Explanation of land form</th>
<th>Sketch of land form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round hill</td>
<td>![Contour Pattern](150 100 50)</td>
<td>Contours in a circle or oval shape</td>
<td>![Side View](Round Hill)</td>
<td>High, round area of land; not as big as a mountain</td>
<td>![Sketch](Round Hill)</td>
</tr>
<tr>
<td>Spur</td>
<td>![Contour Pattern](40 30 20 10 20 30 40)</td>
<td>Contours in a U or V shape that point away from high land</td>
<td><img src="Spur" alt="Side View" /></td>
<td>Area of high land that sticks out like a finger from the side of a mountain or hill</td>
<td><img src="Spur" alt="Sketch" /></td>
</tr>
<tr>
<td>Re-entrant</td>
<td>![Contour Pattern](40 30 20 20 30 40)</td>
<td>Contours in a U or V shape that point towards high land</td>
<td><img src="Re-entrant" alt="Side View" /></td>
<td>Dip between two spurs; a small valley</td>
<td><img src="Re-entrant" alt="Sketch" /></td>
</tr>
<tr>
<td>Two hilltops and a saddle</td>
<td>![Contour Pattern](100 50)</td>
<td>Two circle-shaped contours with a space between them</td>
<td>![Side View](Two Hilltops and a Saddle)</td>
<td>Two areas of high land with a shallow dip between them</td>
<td>![Sketch](Two Hilltops and a Saddle)</td>
</tr>
<tr>
<td>Knoll</td>
<td>![Contour Pattern](40 60 80 100 100 60 40)</td>
<td>A circle-shaped contour located on a spur</td>
<td><img src="Knoll" alt="Side View" /></td>
<td>Low, knob-like hill located on a spur</td>
<td><img src="Knoll" alt="Sketch" /></td>
</tr>
<tr>
<td>Cliff</td>
<td>![Contour Pattern](100 150 200)</td>
<td>Contours on top of or almost on top of each other</td>
<td><img src="Cliff" alt="Side View" /></td>
<td>Almost vertical fall in the land</td>
<td><img src="Cliff" alt="Sketch" /></td>
</tr>
<tr>
<td>Gorge</td>
<td>![Contour Pattern](200 150 100 50 200 150 100 50)</td>
<td>Contours go down very steeply then back up very steeply</td>
<td><img src="Gorge" alt="Side View" /></td>
<td>Deep valley with steep sides</td>
<td><img src="Gorge" alt="Sketch" /></td>
</tr>
</tbody>
</table>
Application
Identifying land forms on a map

Match the following names of land forms to the correct diagram in figure 10.21 (you may need to refer to figure 10.20).
(a) Valley
(b) Hill or knoll
(c) Ridge
(d) Cliffs
(e) Spur
(f) Saddle

10.5.3 Grid bearings

Grid references are a quick and accurate method of locating places or features on a map. On a typical 1:25 000 topographic map, these vertical and horizontal lines are every four centimetres on the map and represent one kilometre on the land, making them useful for measuring approximate distance. However, the main function of grid references is for locating features.

Application
Locating features using grid bearings

1. Examine the map in figure 10.22, which illustrates how grid reference lines may be used to give a location. The location of X on this map would be 316 667. Each grid reference line is numbered and each square is divided into 10 imaginary squares. The top of a map is always north. The horizontal grid lines are therefore called northings because they increase in value to the north. The vertical grid lines increase in value to the east and are called eastings. The GR (grid reference) is always read from the bottom first (eastings), followed by the side readings (northings).

2. Give the grid bearing of the following features on the map in figure 10.22:
(a) bridge
(b) building
(c) river junction.
10.5.4 Magnetic bearing
Using a compass to find magnetic north and true north

A compass is a valuable navigational tool if it is used accurately. It can provide direction and assist in determining location. A compass can assist in navigation by providing the location of magnetic north. The compass needle always points to **magnetic north**, which is in the direction of the North Pole. It is a position that changes slightly every year. **True north** is the direction of the North Pole. The top of a map is always **grid north**. There is a slight variation between magnetic north and grid north, which is due to the fact that maps are flat, but the Earth's surface is curved. This variation between the two is known as the **magnetic variation**.

The position of magnetic north is constantly changing, although at a very slow rate, taking 20 years to move just one degree. However, this variation must be taken into consideration when using a map and compass to give accurate readings and enable a location to be found. In New South Wales, it is generally assumed that the amount of the variation is 11–12° unless the map is particularly old. It is worthwhile checking the information displayed in the map legend about magnetic variation.

**FIGURE 10.23** Diagram showing the difference between grid and magnetic north (MN). This difference is referred to as magnetic variation.

**FIGURE 10.24** Components of a compass

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**Application**

**Using a compass**

1. Examine the diagram of the compass (figure 10.24) to identify the main components.
2. To use the compass to find north:
   - hold the compass flat in your hand about waist height
   - the red end of the moving needle will always point to the north
   - align the direction of travel arrow on the top of the compass with the red end of the compass needle by turning the compass housing until the two (usually red) lines match up.
   - the bearing should be 0°. This indicates north.
3. Identify objects in your school grounds that are found in a northerly direction. Identify the compass bearing of other cardinal points on the compass. Cardinal points on the compass are the major directional points; that is, north, south, east and west.

4. Complete figure 10.25 showing the cardinal points and their compass bearings.

5. To use the compass to orientate the map:
   • lay the map out flat and place the compass on top of it, with the red end of the moving needle pointing to the direction of travel arrow (which is north 0°) and pointing towards the top of the map
   • rotate the map until the grid lines on the map are parallel with the lines on the compass housing. North on the compass should face the top of the map.
   • the map is now orientated and land forms should be able to be identified in the appropriate direction.

Taking a bearing using the compass

In many situations, we can use only the map or only the compass to determine which direction to travel. However, for greater accuracy, it is best to use the two together. A compass can be used to calculate and follow bearings. A bearing is the direction of travel measured as the angle from 0° (north) and recorded in degrees. For example, to travel south the bearing would be 180°.

Application

Taking a compass bearing

1. Practise taking bearings of objects in your school yard by following these instructions.
   • Hold the compass steady at chest level and point the direction of travel arrow at the object. The object in figure 10.27 is the bush.
   • Rotate the adjustable dial until the N on the compass housing lines up with the red end of the moving needle.
   • Take the reading for the bearing from the direction of travel arrow. In figure 10.27 this would be 100°ESE.
   • As you proceed towards the bush, you will be following the bearing of 100°.

2. Design an orienteering course for a partner or group to complete around your school grounds.
Considering magnetic variation when recording bearings

To check position in the field, a bearing can be taken from objects in the distance and then checked on the map to clarify where you are. However, whenever a bearing is calculated from the field and located on the map or calculated on the map and checked in the field, the magnetic variation must be considered to compensate for the difference between magnetic and grid north.

When converting a bearing from the field to the map, the magnetic variation must be added to the bearing. In New South Wales, this generally means that 11° is added.

When converting a bearing from the map to the field, the magnetic variation must be subtracted from the bearing. In New South Wales, subtract 11°.

Application

Setting and following a course from a map

When contemplating a long bushwalk, the course needs to be planned before leaving. This can be done at home, selecting the course and using the compass to take bearings from the map. Consider the example in figures 10.28 and 10.29 in which the person is intending to walk from point A to point B.

Step 1
• Place the long end of the compass on the map to join A and B along the edge of the compass (figure 10.28).

Step 2
• Rotate the compass housing until the lines on the housing are parallel with the grid lines. Turn the map so that north on the compass needle is pointing in the same direction as north on the map.
• Read the bearing from the direction of travel arrow. The bearing in figure 10.29 is 100°.

10.5.5 Measuring distance

The scale on the map assists in the calculation of distance to be travelled. Most walking parties could expect to travel four to five kilometres per hour on flat, cleared ground. More time should be allowed for sloping and densely vegetated land, where it may take one hour to cover less than one kilometre. Naismith’s rule is commonly used to estimate the time it will take to cover a distance over varying terrain. Simple calculators are available online, such as at the Wild Walks: Naismith’s rule weblink in the Resources tab. After distance,
walking speed, ascent and decent are established, an estimate of time for the walk is calculated providing participants have a reasonable level of fitness.

10.5.6 Natural navigation

In addition to the map and compass, it is possible to navigate by using the sun, moon and stars to assess location and direction.

**Navigation by the sun**

In the southern hemisphere the sun always appears in the northern sky. In summer the position of the sun at midday will be much higher in the sky than in winter; however, it still appears in a northerly direction. Appreciating this, plus the fact that the sun always rises in the east and sets in the western sky, can give broad direction. The sun can also be used to determine direction if a shadow stick is used to map the movement during the day.

**Navigation by the stars**

The most useful stars for direction in the southern hemisphere are the Southern Cross and the Pointers.

### Application

**Natural navigation using the stars**

To find south:
- draw a line between the long axis of the Southern Cross
- imagine a vertical line between the Pointers. Bisect the line and continue until the line meets an imaginary extension from the Pointers.
- at the point at which they meet, drop an imaginary line to the horizon, which indicates south.

**FIGURE 10.30 Using the Southern Cross and the Pointers to find south**

10.6 Emergency management skills

Many accidents and emergencies occur because of poor planning or inadequate knowledge and skills. Before leaving, refer to the following check list:
- Are all participants fit and healthy?
- Do any of the participants have medical conditions that may affect their performance?
- Has the group leader clearly communicated the nature and demands of the trip?
• Have equipment lists been issued and followed by all participants?
• Are food and water rations adequate and appropriate?
• Have weather forecasts been checked?
• Do participants have appropriate clothing and equipment to cope with predicted weather conditions?
• Have details including exact route, anticipated timing, transport arrangements and phone contact numbers been left with family, authorities including National Parks and Wildlife Service, or land owners?
• Are first aid supplies and knowledge adequate?

10.6.1 Wilderness first aid
Following are procedures for dealing with first aid emergencies.
• Ensure that you are not in danger of being hurt yourself.
• Assess the injury. Talk to the patient if possible and try to determine the extent of damage. Observe the injury and look for swelling, abnormal movement or redness.
• Treat the site of the injury — control bleeding, treat blisters, bandage the limb.
• Determine whether the injured person can continue. This depends upon the nature of the injury. The group may need to stop for a while or even set up camp for the night to allow the person to rest.
• If the injury is serious (for example, the person has a snakebite, is unconscious, has a broken limb or is suffering from severe exposure) and the person needs medical attention, then the group needs to alert authorities and monitor the patient’s condition using DRSABCD (see section 7.1.3).
• Depending on the situation, the remaining party may need to locate themselves near a clearing, in case a helicopter is needed. The patient needs to be made as comfortable as possible; for example, erect shelter and start a camp fire. Two experienced and responsible people should go to the nearest exit and seek help, making sure they know the exact location of the remaining party, including grid references and details about the patient’s condition. At least one person, but preferably two people should remain with the injured person.

Thermoregulation
Hyperthermia and hypothermia are caused by adverse environmental conditions. Table 10.2 discusses the symptoms and treatment of hyperthermia and hypothermia.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Signs and symptoms</th>
<th>Treatment guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hyperthermia</strong></td>
<td>flushed, headache</td>
<td>If the victim is conscious: give them water to drink, rest them in the shade, remove unnecessary clothing, drape them with wet triangular bandages or light cotton clothing.</td>
</tr>
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<td></td>
<td>rapid, weak,</td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>vomiting, blurred</td>
<td></td>
</tr>
<tr>
<td></td>
<td>vision, dizziness</td>
<td></td>
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</table>
**Condition** | **Signs and symptoms** | **Treatment guidelines**
---|---|---
**Hypothermia** is a condition associated with lowered body temperature that can result in death if it is not treated. Prevention is the key, so ensure appropriate clothing and equipment, sound knowledge and leadership. Layers of clothing with a waterproof coat and pants, as well as beanie and gloves are needed in cold environments. Wind increases cooling significantly. A combination of wind, rain and cold temperatures can be quickly fatal to the underprepared person. Exhaustion and lack of food can speed up the process. One of the most dangerous aspects of hypothermia is that a person may become very confused and become incapable of making decisions to treat the condition. It is vital to recognise signs early and treat the condition immediately.

Progression of the following:
- sensation of chilliness
- skin numbness
- impairment of muscle function
- shivering
- stumbling
- confusion
- loss of speech
- poor decision-making capacity.

If untreated, the skin becomes blue and cold to touch, the pulse becomes weak and behaviour is irrational. Unconsciousness and death may result.

- stop at first sign of exposure
- shelter from wind and rain
- put on extra clothing (it may be necessary to remove wet clothing)
- if recognised early, have something warm to eat or drink

If the person does not warm themselves early using the above techniques, their core temperature continues to fall, which is very dangerous. The person needs to be warmed slowly by wrapping them in a survival blanket or sleeping bags, huddling together in the same sleeping bag or side-by-side, creating a shelter and adding warm, dry clothing. Monitor using DRSABCD. Do not place the person next to direct heat such as a fire or rub the body, as this increases heat at the skin’s surface and removes it from the body core (brain, heart, lungs), which most needs the heat.

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### Other first aid conditions

Table 10.3 discusses other first aid situations you may encounter in the wilderness. See topic 7 for details on other first aid emergencies.

**TABLE 10.3** Other conditions requiring first aid in the wilderness

<table>
<thead>
<tr>
<th>Condition</th>
<th>Signs and symptoms</th>
<th>Treatment guidelines</th>
</tr>
</thead>
</table>
**Snakebite** can generally be avoided by wearing shoes and socks and inspecting logs before lifting them. Most snakes move out of your path if you give them time and space to move. It is rare for them to be aggressive unless they are threatened.

- fang marks
- pain at the area
- headache, nausea, vomiting
- unconsciousness

Apply a firm pressure bandage (see topic 7, page xxx) from the bite site all the way up the limb and back to the site, then use a splint to immobilise the limb. The person must lie still. Medical assistance is needed as quickly as possible.

**Blisters** can be avoided by wearing boots that fit properly and avoiding wrinkles in socks. Do not walk in wet socks. Cover areas with tape as soon as you notice blisters.

- burning, irritating feeling on pressure points, usually on toes and heels on the feet

- stop
- clean and dry the area
- use a sterilised needle to prick the blister along the bottom
- apply disinfectant
- cover with leucoplast tape
- once in camp, uncover the blister and allow it to dry out
10.6.2 What to do when you are lost
If you become lost, follow the procedure below.
• If you become lost, STOP and do not panic.
• Find shelter and discuss the situation as a whole group.
• Examine maps carefully and consider retracing your steps back to the last known point on the route plan.
• If the group is not confident about retracing their steps
  – stay together
  – keep a smoky fire going to attract attention
  – conserve energy
  – set up shelter
  – listen for voices
  – stay where you are.
• Distress signals for search and rescue include three short whistle blasts, flashes of a signal mirror, smoke from fires and waving bright clothing.
• If conditions are bad and it is likely that anyone setting off will get into difficulty, the whole group should remain together. Part of effective planning is ensuring that others know your route and expected time of return. Provided you have stayed on the route, authorities should be able to locate you.

Inquiry
Constructing an emergency shelter
1. Use the Outdoor shelter weblink in the Resources tab to learn how to construct a debris hut.
2. Discuss the importance of having shelter in emergency situations.

Application
Building a shelter
As a class, build a small emergency shelter using only materials you can find.

Resources
Weblink: Outdoor shelter

10.6.3 Bushfire procedures
Most injuries or loss of life in a bushfire are caused by ignorance and panic. The greatest danger is from radiated heat, hence it is vital to protect yourself by covering all of your skin. If caught out while bushwalking, remember the following points.
• Woollen clothing is best as synthetic materials may melt and bubble.
• Dampen your clothing (use wet mud if possible) and drink a lot of fluid.
• Breathing difficulties may be eased by using a damp cloth as a filter.
• If caught on a ridge line, it is best to stay low to the ground as the air there contains less smoke. Finding a hollow, wombat hole or cave can help.
• Fire generally burns fastest uphill. The fire will race up the slope, pause at the top and may be less intense as it passes over, so the leeward side of a ridge could be the safest.
• In a gully seek a stream, cave or damp bank, but avoid being halfway up a slope.
• If your clothing catches on fire, stop, drop and roll on the ground.
• Once the front has passed, danger remains from half-burnt logs, falling trees and frightened wildlife.
• If you are in your car, stay there. Cover yourself and lie on the floor until the front has passed.

**FIGURE 10.31 Points for bushfire survival when on foot (adapted from brochure published by the Bush Fire Council of New South Wales)**

- Don't panic — stop and think.
- Find an open space.
- If possible, dig a shallow trench,
- find a fallen log, or
- find a rocky outcrop.
- Lie face down and cover all exposed skin.

### 10.6.4 Lightning

Lightning storms can be very frightening when camping outdoors. If storms are present, use the following guidelines.

- Erecting tents in sheltered locations of a grove of low shrubs is best.
- Avoid stopping under very large or isolated trees.
- Stay away from wire fences or rock crevices.
- If caught out in the open, remove all metal objects such as trangia stoves and sit on your backpack with your feet and hands off the ground.

### 10.6.5 Flooded rivers

It is best to plan routes to avoid crossing large rivers, which can be very hazardous. Possible hazards include:

- unstable banks
- fast-flowing water
- deep holes
- cold water
- debris caught on the river bed.

If the river is considered safe to cross, the following guidelines should be followed.

- Throw a stick in the flow to check the speed of the moving water.
- If the water is below knee height, cross the river as individuals, in a diagonal, downstream direction.
- Ensure your gear is in waterproof bags. Use a large plastic bag to line your pack.
- Leave your shoes on unless the river has a clear, sandy bottom.
- Release the waist belt on your pack. If you are swept off your feet, remove the pack from your shoulders.
• If the water is above knee height, try to find a long stick that four to five people can hold onto at waist height. Cross in a diagonal, downstream direction.
• Individuals may cross a river on their own, aided by a stick that they can plant on the upstream side and lean into as they cross.
• Packs can assist with flotation if sufficiently waterproofed inside. Lean back onto the pack and keep your legs and feet up. However, in many instances packs should be shed, as they can become very heavy and weigh down a weak swimmer.
• If in doubt, do not cross.

10.6.6 Skills needed for other outdoor activities relevant to the experience
Canoeing, kayaking and abseiling are outdoor recreation activities whose popularity has increased significantly in recent years. All three activities can be performed as recreational activities, but lend themselves to increased risk taking when performed at the extreme level. Sometimes these activities are programmed as part of an expedition or adventure and require particular knowledge and skills to avoid injury.

Canoeing and kayaking skills
The basic difference between the canoe and kayak is that the canoe is an open vessel while the kayak is enclosed. It is usual to use a single-bladed paddle with the canoe and a double-bladed paddle with the kayak; however, this is not always the case and depends on the type of activity. Rivers, lakes, surf, white water rapids, sprint racing and marathons are some settings where canoes and kayaks are used. Some of these, such as sea and white water kayaking, can be both challenging and dangerous, requiring specific knowledge and particular skills before attempting.

![Canoeing and Kayaking Image](image_url)

Some skills and behaviours required by canoeists/kayakers include:
• always wear appropriate gear, including helmet, wetsuit, wetsuit shoes and personal flotation device (PFD)
• do not canoe/kayak by yourself and always tell someone if you intend setting out
• research the waterway, dam, river or surf area you intend to use and be aware of places nearby that might be able to provide access or first aid if required
• ensure your canoe/kayak is in good condition
• always challenge yourself within your level of ability, but avoid taking risks that could result in injury
• when paddling be careful to avoid hazards such as sticks, overhanging branches, submerged trees and rocks
• ensure you carry a first aid kit including mobile phone inside a waterproof container
• do not engage in canoeing or kayaking unless you are a competent swimmer
• ensure you have had lessons on entering and exiting the canoe/kayak, paddling and what to do if you capsize
• do not perform the activity if weather conditions are unfavourable or the forecast suggests deteriorating conditions such as thunderstorms, extreme temperatures, big swells or waves, or increased flow in inland rivers.

To learn more about the basic skills of kayaking and canoeing, use the Basic skills of kayaking and Basic skills of canoeing weblinks in the Resources tab.

**Abseiling skills**

Abseiling is an adventurous activity that requires the participant to descend a cliff or prefabricated wall using a fixed rope. Most sport and recreation facilities offer abseiling as a challenge activity, while in the bush it has the potential to be a more dangerous yet challenging experience. If you intend to go camping and abseiling, it is good practice to learn basic skills using indoor climbing and abseiling walls to establish proper techniques.

Some skills and behaviours of which the abseiler should be aware include:
• always ensure that the equipment has been checked for safety. This includes items such as harnesses, helmets, ropes, safety lines, gloves and footwear.
• never abseil alone
• develop your skill gradually and progress to greater heights and natural landscapes only after gaining basic abseiling proficiency
• check that you know which knots are required, how to tie them and when to use them
• ensure that all devices are securely in place before using
• avoid sharp edges on rocks when descending
• do not abseil if weather is windy or inclement as you are likely to lose your footing.

To find out more about basic abseiling techniques, use the How to abseil weblink in the Resources tab.
10.7 Leadership styles

The leader’s task is to find the right balance between safety, enjoyment and achievement in a group. The leader must have sufficient experience, knowledge and skills to change their style of leadership as they evaluate situations and strive to assist the group achieve its outcomes. A range of different styles of leadership are appropriate to cater for different situations in outdoor recreation. Each style has strengths and weaknesses. An effective leader is able to assume different styles, depending on the situation. Examine table 10.4 which explains the styles of leadership and outlines the strengths and weaknesses of each.

<table>
<thead>
<tr>
<th>Style of leadership</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democratic</td>
<td>• individuals feel important and valued</td>
<td>• not all group members may have the relevant experience to make a decision</td>
</tr>
<tr>
<td></td>
<td>• the whole group has a chance to give opinions and use their experience</td>
<td>• creates uncertainty</td>
</tr>
<tr>
<td></td>
<td>• gives the group responsibility and ownership of the decision</td>
<td>• conflict may result from differing opinions</td>
</tr>
<tr>
<td></td>
<td>• wider range of options identified</td>
<td>• may take some time to reach a decision</td>
</tr>
<tr>
<td></td>
<td>• gives people the opportunity to learn through experience</td>
<td>• a clear decision may not be reached</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• slow if safety issue is involved</td>
</tr>
<tr>
<td>Laissez-faire</td>
<td>• can promote leadership opportunities in the group</td>
<td>• can result in dangerous situations emerging due to lack of leadership</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• group may not pay enough attention to important issues such as conservation</td>
</tr>
<tr>
<td>Autocratic</td>
<td>• saves time, which can be important in potentially dangerous situations such as bad weather</td>
<td>• removes control from the group members — they have limited input and involvement</td>
</tr>
<tr>
<td></td>
<td>• responsibility is clearly held by decision maker</td>
<td>• participants may have alternatives to the leader's decisions that are not considered</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• levels of dissatisfaction and frustration may cause conflict</td>
</tr>
<tr>
<td>Strategic nonintervention</td>
<td>• promotes group decision making and teamwork</td>
<td>• situation may become dangerous if leader doesn’t step in at the right time</td>
</tr>
<tr>
<td></td>
<td>• useful in assessment situations where participants are encouraged to display leadership, such as the Duke of Edinburgh Award</td>
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</tr>
</tbody>
</table>

**Application**

**Debating leadership styles**

Debate the style of leadership that would be most effective in each of the following recreation experiences:
(a) a 10 kilometre alpine adventure requiring cross-country skiing and building snow caves
(b) an overnight camp in the mountains in hot weather
(c) a 10 kilometre bushwalk involving abseiling and bushwalking
(d) a canoeing expedition that involved the need to navigate rapids and an overnight camp near the river bank.

10.8 Understanding group dynamics

Many outdoor recreational activities involve working together in groups to achieve a common purpose. Relationships or the group dynamics between group members can determine the success of the expedition and also the extent to which participants enjoy the experience.

A successful model for understanding the stages of group development is summarised in the ‘forming’, ‘storming’, ‘norming’, ‘transforming’, ‘adjourning’ model originally developed by educational psychologist, Bruce Tuckerman. Table 10.5 shows a summary of this model.

<table>
<thead>
<tr>
<th>TABLE 10.5 Stages of group development</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Forming</td>
<td>In this stage, most team members are positive and polite. Some are anxious, as they haven’t fully understood what work the team will do. Others are simply excited about the task ahead. As leader, you play a dominant role at this stage, because team members’ roles and responsibilities aren’t clear. This stage can last for some time, as people start to work together, and as they make an effort to get to know their new colleagues.</td>
</tr>
<tr>
<td>Storming</td>
<td>Next, the team moves into the storming phase, where people start to push against the boundaries established in the forming stage. This is the stage where many teams fail. Storming often starts where there is a conflict between team members’ natural working styles. People may work in different ways for all sorts of reasons, but if differing working styles cause unforeseen problems, people may become frustrated. Storming can also happen in other situations. For example, team members may challenge your authority, or jockey for position as their roles are clarified. Or, if you haven’t defined clearly how the team will work, people may feel overwhelmed by their workload, or they could be uncomfortable with the approach you’re using. Some may question the worth of the team’s goal, and they may resist taking on tasks. Team members who stick with the task at hand may experience stress, particularly as they don’t have the support of established processes, or strong relationships with their colleagues.</td>
</tr>
<tr>
<td>Norming</td>
<td>Gradually, the team moves into the norming stage. This is when people start to resolve their differences, appreciate colleagues’ strengths, and respect your authority as a leader. Now that your team members know one another better, they may socialise together, and they are able to ask each other for help and provide constructive feedback. People develop a stronger commitment to the team goal, and you start to see good progress towards it. There is often a prolonged overlap between storming and norming, because, as new tasks come up, the team may lapse back into behaviour from the storming stage.</td>
</tr>
<tr>
<td>Transforming</td>
<td>The team reaches the transforming stage when hard work leads, without friction, to the achievement of the team’s goal. The structures and processes that you have set up support this well. As leader, you can delegate much of your work, and you can concentrate on developing team members. It feels easy to be part of the team at this stage, and people who join or leave won’t disrupt performance.</td>
</tr>
</tbody>
</table>

(Continued)
TABLE 10.5 Stages of group development (Continued)

<table>
<thead>
<tr>
<th>Stage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjourning</td>
<td>Many teams will reach this stage eventually. For example, project teams exist for only a fixed period, and even permanent teams may be disbanded through organisational restructuring. Team members who like routine, or who have developed close working relationships with other team members, may find this stage difficult, particularly if their future now looks uncertain.</td>
</tr>
</tbody>
</table>


Application

Solving an initiative challenge

1. Divide the class into groups of 10.
2. Each group stands in a triangular formation making a 4-3-2-1 arrangement (see diagram below).

```
4 XXXX
3 X X X
2 X X
1 X
```
3. From there, change the base with the apex by moving only three people.

10.8.1 Conflict resolution

Effective communication skills are needed to resolve conflict situations that often occur because of misunderstandings between individuals within the group, such as the agreed time to set off in the mornings. Whenever a group of people attempt a common task, there is potential for conflict to occur. Outdoor recreation offers opportunities to develop conflict resolution skills because teamwork and cooperation are essential if the group is to be successful in achieving its goals. In any conflict situation, a resolution occurs only if both parties acknowledge the conflict and are willing to take steps to resolve the problem.

10.8.2 Team building

Outdoor recreation offers considerable challenges and, in some cases, difficult obstacles that need to be overcome by participants working together as a team to achieve a common goal. Successful groups work together effectively by recognising and valuing the strengths and weaknesses of each other.

10.8.3 Cooperation

Successful groups can work cooperatively towards achieving a common goal. Experienced or capable members of the group can assist others who may be slower and less confident by offering encouragement and assisting with equipment. Meal preparation and camp site management are much easier and more enjoyable for all participants if they are tackled by all group members in a cooperative manner. In difficult expeditions, most group members require some encouragement from others in the group at some point.

Application

Team building

Visit an outdoor adventure centre that has a ropes course and problem-solving tasks. Work cooperatively to solve simulated initiative challenges. Alternatively, try some team building activities that are designed to enhance
group cohesion when working in teams. Figure 10.34 provides an example. The object of this task is to transport a group from A to E using boards. No part of the boards or of the participants’ bodies may touch the ground. The boards must be slotted into the groove in the top of the posts. If any part of the boards or participants touches the ground, the group must start again at A.
You will need two boards. One board should fit the space between A and B, and C and D; the other board should fit the space between B and C, and D and E.

**FIGURE 10.34** Course and equipment for the team building and problem-solving task

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10.9 Facilitation skills

10.9.1 Communication skills

Effective communication could be the difference between a safe and enjoyable experience and an unhappy and dangerous expedition. Communication in outdoor recreation must involve all participants within the group, as well as relevant authorities and family who are staying behind. Participants need to ensure that all group members are aware of routes, camp sites and possible hazards in case they become separated. Open communication, where all participants feel free to express their opinions and ideas, contributes to effective decision making and group cohesion. Participants should ensure that communication with outside groups, including family and relevant authorities, is also clear.

Accurate details of plans should be left with responsible adults in case of emergency, and mobile phones should be carried for additional safety. It should be noted that in many remote regions, signals for mobile phones may be difficult to obtain and participants may need to climb to a high point to make a connection. In remote areas, participants should consider carrying additional forms of communication used to signal distress, including flares and an EPIRB, which is an emergency signalling device.

10.9.2 Decision making

Many outdoor adventure activities involve groups working together to solve problems, make decisions and judge various situations; for example, deciding whether to cross a fast-flowing river. It is important that the group can develop effective methods of communication and decision making, to ensure that they make progress and have a safe and enjoyable experience.

10.9.3 Flexibility

Weather conditions, ability levels of the participants and injury are just some of the variables that could make a change in plans necessary. Flexibility in planning is therefore essential. Groups need to ensure that they are adequately prepared to extend or change their trip as needed.
CASE STUDY

Group challenges
Josie, Tran, Yasser, Jill and Tony set off on a bushwalking expedition in the Snowy Mountains in October. They had organised to be picked up at their final destination in five days. The group were all very excited about the expedition, which they had been planning for several months. All had done some training in the Ku-ring-gai National Park, which was close to their homes, and felt confident in their fitness levels. Josie and Tran bought all the food for the group and had it organised into five packages of equal weight for the group to carry. Tony was a keen skier and had been to the Snowy Mountains several times in the past. Tony felt confident that he was familiar with the terrain.

The first day was very hard going and soon the group began to separate, with Yasser and Jill starting to lag behind. Yasser was having trouble with his new hiking boots and Jill was struggling with the weight of the backpack. Tony was getting anxious as some black clouds loomed in the distance and the group was still a long way from their planned destination to spend the first night. He suggested that the group not stop for lunch to save time.

As the group climbed higher they began to strike snow and found the walking to be very slippery on the snowy grass. The weight of their packs was difficult to manage in the conditions. The group thought that most of the snow would be melted and were surprised to find themselves trudging through knee-high sections.

At about 4.00 p.m., Josie suggested the group stop and have a rest and look at the map to find a closer place to camp. The wind was getting stronger and it looked like it might rain. Tony spoke out angrily and said that the group must keep going to reach the creek so that they could get water for their overnight camp. But Yasser and Jill were exhausted and refused to go any further. They began to set up their tents. Tony was furious and told them that they were not trying and should not give up so easily, before storming off in a huff.

Josie and Tran had been studying the map and found a waterway marked that was not too far from where the group had stopped. They scouted around the area and found a grove of trees suitable for a camp site and suggested that the group move to the spot. Tony returned and reluctantly agreed, but Yasser and Jill decided to stay where they were, having already unpacked their packs, despite the position being quite open and exposed.

It was getting late and cold and the group could not agree on a camp site. Finally Josie, Tran and Tony set off for the grove of trees and left Yasser and Jill at the spot, agreeing to meet again in the morning. During the night, the wind and rain increased.

Inquiry

Group challenges
In small groups discuss the case study above, which involves a group facing challenges and needing to solve problems on their expedition. Then answer the questions that follow.
1. What problems, challenges and potential hazards did the group in the case study above face?
2. Identify and discuss any poor judgements or bad decisions that were made.
3. Comment on the communication and leadership skills displayed in the group.
4. Write a possible ending for the case study.
5. Group challenge: form groups of five. You will need a newspaper and a roll of sticky tape. One person in the group is allocated the role of an observer and the remaining four people are participants.
   (a) The group: using the newspaper and roll of sticky tape, your group has to construct an Australian animal in five minutes.
   (b) The observer: record your observations of the group dynamics displayed under the following headings — roles within the group, methods of communication, skills used to deal with conflict.
   (c) After five minutes the observer is to report to the group. Discuss the aspects of group dynamics, leadership styles and communication that emerged during the activity.
10.10 Understanding strengths and weakness

10.10.1 Participant readiness
Participants must understand the strengths and weaknesses of themselves and others in the group. People have different boundaries of comfort and respond to situations differently. Leaders must strive to ensure that group members are individually catered for. What is exciting and challenging for one individual may be terrifying for another.

Individuals must be given information to form choices surrounding their participation. Leaders need to ensure that participants have sufficient knowledge about what they are getting themselves in for and are therefore ready to face the challenges and take risks within the bounds of their own competence. Leaders must also be able to assess risks on behalf of their inexperienced group, who may not have the knowledge or personal fitness level to accurately assess the situation at hand.

10.10.2 Self-efficacy
Outdoor recreation offers many opportunities to develop self-confidence. Participants may face challenges and strive to overcome them individually or as a part of a group. Facing challenges and fears takes a certain amount of courage and self-efficacy, or confidence that you can complete the task. Participants need determination and tenacity to succeed in difficult conditions and this can contribute to motivation and personal growth in other areas in their lives.

10.10.3 Balancing challenge and safety
Safety considerations are very important to those involved in outdoor recreation as many activities are performed in remote locations a long way from medical assistance. It is imperative that groups who venture into the outdoors have sufficient knowledge and experience to participate safely. The level of risk involved in an activity depends on many factors including:

- prior experience and fitness of the party
- equipment
- weather conditions
- knowledge and skills within the group and group leaders
- choice of activity.

We can minimise risk by using state-of-the-art equipment. However, it would not be desirable to remove all risks in outdoor adventure activities, because this would remove much of the desire to participate in them! Many individuals and groups are attracted to outdoor adventure activities because of the risks and difficulties involved. They force participants to push the limits of their comfort zone. Indeed, many leaders in outdoor adventure activities deliberately set out to push the limits of the comfort zone and provide a thrilling experience with potential for personal growth. Therefore, while we must balance safety and challenge, to remove all risks would kill the excitement and adrenaline rush that participants feel are inherent in many outdoor adventure activities.

The benefits of teamwork and personal growth inherent in outdoor adventure activities have been recognised by many employers, who are increasingly choosing staff development opportunities that involve the challenge of the outdoors. Many outdoor enthusiasts believe that our society is becoming too urbane and preoccupied with being safe, and therefore we miss out on many opportunities presented by undertaking some risk.

However, the role of the experienced person or leader is still to protect the group and sometimes the best option is to cancel the trip or activity in poor conditions, rather than risk injury. Prior to taking part in many outdoor recreational activities, it is the leader’s responsibility to assess the level of risk in an activity and then minimise the possible dangers to ensure that challenge and safety are balanced.
10.10.4 Pushing the comfort zone

Our comfort zone refers to the level of risk in a situation that we can tolerate or feel comfortable with. A risky situation is one in which we feel that we may lose something. Assessing risk can be quite an individual thing, depending on the level of experience and confidence a person has. What may be risky for one person may seem perfectly safe to another, depending on prior experience and ability. In a group participating in abseiling for the first time, for example, some individuals may be confident and progress from a five metre to a 30 metre drop quickly, while others in the same group may be sufficiently challenged by simply putting on the harness and getting to the edge of the cliff, without actually proceeding down the cliff. The inexperienced person is challenged by the perceived risk associated with the activity, whereas the experienced person may consider the activity to be risky only if poor equipment or technique are used.

In addition to helping others to assess risk, leaders can also provide opportunities for pushing the comfort zone by introducing controlled or perceived risks. For example, in abseiling the leader would ensure safety ropes and helmets are used to promote the safety of the participants. In this way, the level of risk is controlled by the leader, but the participant still faces a perceived level of risk and is challenged. This means that the participants may still feel challenged and even scared, but the risks of injury are minimised.

Application
Challenging our comfort zone

Visit a sport and recreation or similar facility that offers challenging experiences such as abseiling, high ropes, giant swing and climbing frames. Participate in the activities under the supervision of the trained staff.

Inquiry
Debating issues about risk and adventure

On return from the excursion in the application above, debate the following questions.

- How do you control risks while being encouraged to push beyond your comfort zone?
- What ethical considerations confront an instructor in balancing challenge and safety?

10.11 Topic review

10.11.1 Summary

- Participating in outdoor recreation activities is often seen as an escape to the outdoors and an opportunity to ‘re-create’ oneself.
- Increasingly, more and more Australians are living and working in urban communities, most often in ‘safe’, indoor environments. Therefore it becomes important for these people to interact with nature, test personal limits and participate in activities with adventure in mind.
- Outdoor recreation activities can offer new environments and unfamiliar activities that can assist a person to explore personal limits and capabilities.
- Many outdoor recreational pursuits involve physical activity and can contribute to the development and maintenance of fitness.
- Leaders must have prior experience in the area and research thoroughly before leading a group of less experienced participants. Equipment should be carried that will be suitable for conditions likely to be encountered.
• On an expedition, a group may need to use an escape route if the weather changes, participants are not coping with the terrain, or an injury is suffered.
• Specific emergencies in outdoor recreational expeditions could include snakebites, cuts and grazes, bites and stings, hypothermia, hyperthermia, sprains, strains and blisters. The group needs to have the knowledge and skills to cope with such problems.
• Hypothermia is a condition associated with lowered body temperature and is often called exposure. It can result in death if not treated.
• It is essential that participants prepare a balanced intake of food during extended activity. Kilojoule intake needs to be high in physically demanding activities to provide energy for activity and to keep the body warm. Carbohydrates need to be the dominant food group consumed, followed by protein and fats.
• Outdoor recreational activities demand lightweight, durable equipment and clothing that will protect you from environmental conditions.
• All campers have a responsibility to have a minimal impact on the outdoor environment. Participants need knowledge and skills in relation to waste management, erosion control, protecting flora and fauna, and managing fires.
• Everything that is carried in must be taken out.
• Contour lines join all places of equal height above sea level on a map. They provide information about the shape, steepness and height of the land.
• Many accidents and emergencies occur because of poor planning or inadequate knowledge and skills.
• A range of different styles of leadership are appropriate to cater for different situations in outdoor recreation. Each style has strengths and weaknesses. An effective leader is able to assume different styles, depending on the situation.
• It is important that the group can develop effective methods of communication and decision making, to ensure that they make progress and have a safe and enjoyable experience.
• Facing challenges and fears takes a certain amount of courage and self-efficacy, or confidence that you can complete the task.

10.11.2 Questions

Revision
1. Describe the potential value that participation in outdoor recreational activities may offer individuals and society. (P6, P10, P16) (5 marks)
2. Choose one outdoor recreational activity. Prepare a list of the risks and potential hazards involved and how they could be reduced or overcome. (P14, P17) (6 marks)
3. Construct a check list of planning tasks that would need to be done before participating in a four-day bushwalking, canoeing or mountain biking expedition in a national park. (P14) (5 marks)
4. Camp fires have become a contentious issue for many participants in outdoor recreational activities. Discuss the positive and negative aspects of using camp fires and identify steps that can be taken to minimise the harm from them. (P14) (6 marks)
5. Describe key behaviours and attitudes that are important in minimal impact bushwalking. (P14) (4 marks)
6. Describe the procedures your group could take if it becomes lost in a wilderness location. (P6, P14) (5 marks)
7. A group of inexperienced mountaineers, accompanied by two experienced leaders, is confronted by gale force winds and snow, reducing visibility to one metre. A decision needs to be made about whether to continue with the expedition, set up camp where the group are, or to proceed down the mountain and abort the expedition. Select the most appropriate form of leadership for the situation described. Justify your decision. (P6, P10, P14) (5 marks)
8. Create a code of conduct that could be used by commercial adventure companies to ensure that they have minimal impact on the natural environment. (P6, P14) (5 marks)
9. Create and present a practical demonstration to the class on one of these technical aspects of outdoor recreation:
   (a) camp site selection
(b) menu planning and/or outdoor cooking
(c) an aspect of navigation. (P14) (6 marks)

10. Use the contour map in figure 10.35 to answer the questions below. Each line on the map represents a
10 metre change in altitude.

(a) Is A higher or lower than B?
(b) What type of landform is C?
(c) Could you see B from E?
(d) Where would a trig station be located? (A trig station is a high point used as a point of reference
by surveyors.)
(e) Locate two spurs on the map.
(f) Mark with an X a suitable place for a picnic lunch on a day with strong south westerly winds.
(g) Which point would be the best place to camp? Explain your decision. (P14) (7 marks)

11. Use figure 10.36 to answer the following questions.

(a) Draw the easiest route to the plateau at A.
(b) Can you see B from C?
(c) Label the saddle on the map with an S.
(d) Use dotted lines to plot an interesting day walk. Remember it is easiest to walk up spurs and that
precautions must be taken when crossing rivers. Include walking along the valleys as well as
taking in some high points for coastal views.
(e) Would D be a good camp site? Why or why not? (P14) (5 marks)
12. Explain the difference between canoeing and kayaking. (P10) (2 marks)
13. Discuss how leadership styles and group dynamics might affect planning of a three-day wilderness expedition. (P14, P16) (6 marks)

Extension
1. Explain the relationship between challenge, risk and safety in outdoor recreational activities. (6 marks)
2. Use the weblinks in the Resources tab for the following organisations to find more information relating to outdoor recreation. (10 marks)
   - The Wilderness Society
   - Wild, Australia's Wilderness Adventure Magazine
   - Australian Canoeing Online
   - Greenpeace
   - Australian Conservation Foundation
   - New South Wales National Parks and Wildlife Service

Note: For an explanation of the key words used in the revision questions above, see Appendix 2, page xxx.

10.11.3 Key terms
A bearing is the direction of travel measured as the angle from 0° (north) and recorded in degrees. For example, to travel south the bearing would be 180°. p. 379

Cardinal points on the compass are the major directional points: that is, north, south, east and west. p. 379

An escape route is an alternative way out of an area. It is best if a road or settlement is nearby. p. 357

Grid north is the top of the map. It is usually the same as true north. p. 378

Magnetic north is in the direction of the North Pole and changes slightly every year. A compass needle points towards magnetic north. p. 378

Magnetic variation refers to the difference between true north and magnetic north. When navigating we need to take this difference into consideration. p. 378

Scale is the ratio between the distance measured on a map and the actual distance measured on the Earth’s surface. p. 374

Scroggin refers to high energy foods such as dried fruit, nuts and chocolate that are suitable for snacks on expeditions. p. 360

True north is the direction of the North Pole. p. 378

Urbanisation refers to the trend towards more people living in cities. p. 352