

The Duke of Edinburgh's Award Expedition Course Notes



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Navigation: Handrails and Tick Features

map, if you mentally move along a handrail make note of all the things you are going to pass. You may cross a wall, pass a tarn and end up at a sheepfold. All these points are tick features. Identifying tick features and mentally ticking them off as you walk past them is the key to fair weather navigation.

Be careful though as the wall may have fallen down the tarn may be dry and the sheepfold may have been dismantled.

Catchments: This is another name for a tick feature at which you have to stop to make a decision on where to go. For example, at a path junction.

Overshoots: If you miss your catchment (or if no catchment existed) then you may end up further along your handrail than intended. Having identified an overshoot (a recognisable, distinct, tick feature) further along the handrail you will hopefully notice that you've gone too far and can start to back track.

Contour lines

Contour lines are used in mapping to represent the shape of the land. By interpreting them we get a three dimensional representation of what the terrain will look like. Each contour line connects different areas on the map that are at the same height above sea level. When planning your expedition, contour lines tell you if you will be going up or down hill and how steep the slope will be.

It is hard to overstate the importance of contours when navigating using a map. It is often said that they are the only thing that you can really rely on when reading a map.

Walls deteriorate and become overgrown, footpaths move, tarns are sometimes dry.

Contours can be used as tick features, catchments and overshoots. Whenever you are looking for features to describe you leg on the map, include some contour features. For example, when walking along your handrail think what the shape of the land will look like. It may be fairly flat for a kilometre then a steep drop appears on the right followed by a ring contour to the left. Some people take to interpreting contour lines really easily, for most it takes a very long time. Expect to spend the next couple of years honing your skills.

Handrails: These are linear features that you can follow, they include paths, streams, ridges, crags, walls and if it is misty, a compass bearing.

Tick Features: Looking at the

Cross the bridge (1. tick), then follow the edge of the enclosure (2. handrail), strike out for the boulders (3. tick) and follow the top of the escarpment (4. handrail). Ascend the ridge (5. handrail) to reach the trig point on the summit (6. tick).

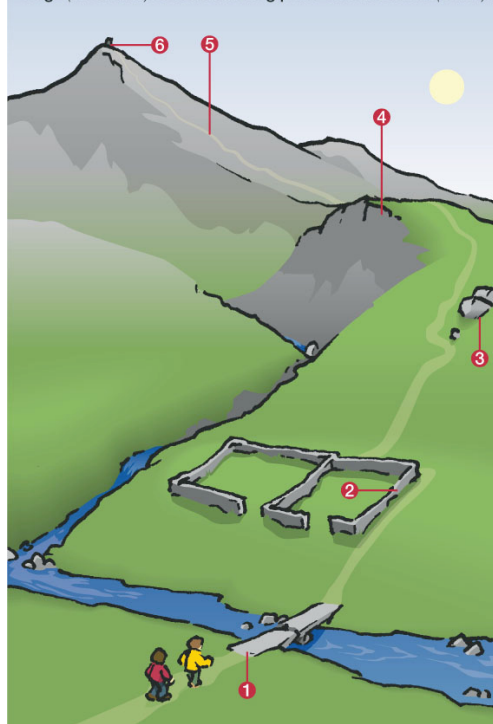


Illustration from 'Hill Walking' © MLTUK/ VG 2003

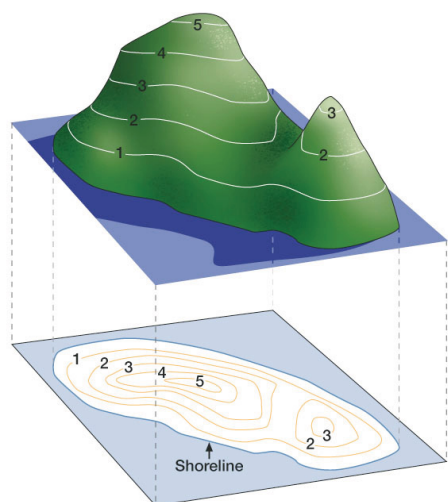


Illustration from 'Hill Walking' © MLTUK/ VG 2003

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Navigating a leg: Forming a Strategy

When you plan your route you will split it into legs to enter it onto your route cards. When you are navigating in real life, if your route card is detailed enough, you should be able to use the route description to help you navigate the leg. However, sometimes, in areas of intricate networks of footpaths (for example), you may have to split your leg down further for the practical act of navigating. A navigational leg could be as short as a few metres or as long as several kilometres depending on the terrain.

For each leg you will need to convert the information that you have from the map into information that you can work with to help you navigate on the ground. A good way to do this is to identify 5 things about the leg (all of which begin with the letter D).

- 1) **Destination** - What will it look like when you have reached the end of the leg.
- 2) **Description** - Describe the leg using handrails and tick features.
- 3) **Distance / Duration**. How long will it take to walk the leg and roughly how long will it take to reach each tick feature.
- 4) **Direction** - In which direction do you need to walk. Usually this will be obvious as it will follow on from your previous leg, but if there has been a change in direction from the previous leg you may need to set the map or take a bearing.
- 5) **Dangers** - Are there any navigational or physical dangers that you may encounter.

Before you start walking on each leg the members of the team with a map should, between them, identify the five D's. They then need to brief the group with all the relevant information. For the most part this will probably be limited to what you are going to see and when you are going to see it. In this way the rest of the group have a responsibility to point out these tick features as you progress along the route. When you get to your destination (the end of your navigational leg) you must stop and repeat the process not just continue on without forming your new strategy.

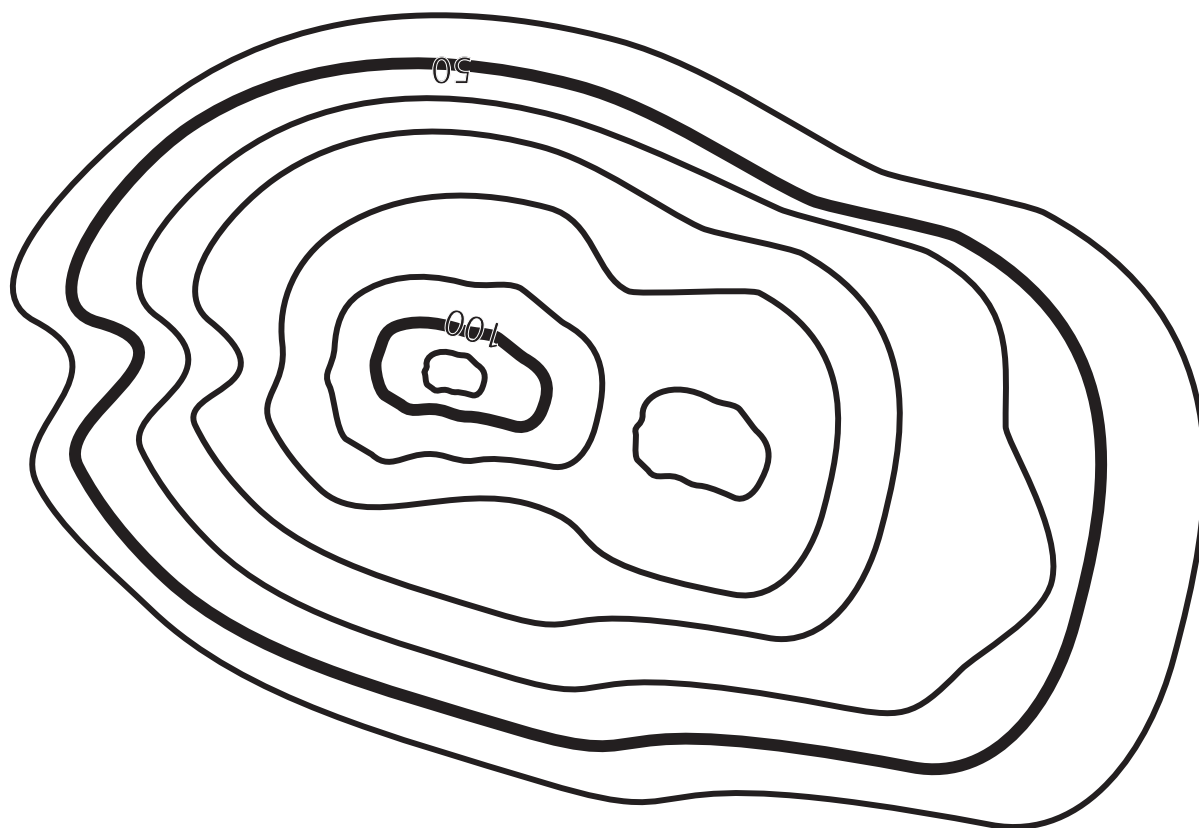


You must always have a strategy.

At all times the entire team must know

- 1) What you are expecting to pass, cross or see.
- 2) When you are expecting to pass, cross or see it.

Interpreting Contours

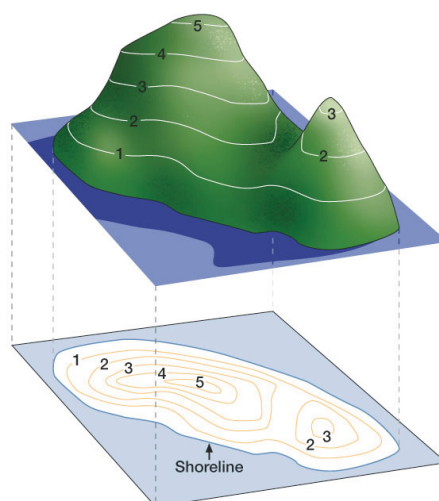


The diagram above represents a hill with two peaks, using contour lines, similar to the one shown in 3D at the bottom of the page. Identify the following points on the diagram.

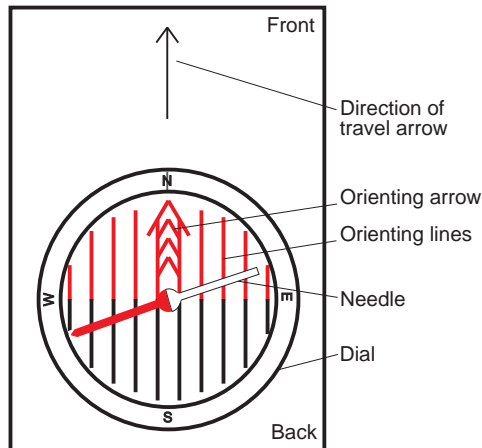
- A) The highest point
- B) The place there is most likely to be a stream
- C) The steepest point
- D) The flattest point.

How high is the right hand peak?

Why are the numbered contours thicker?



The Compass



A map is a representation of the landscape on a sheet of paper. We get information from the map and need to convert it into information that we can use on the ground. We may see a path on the map that we want to follow but this does not tell us in which direction the path goes in real life. In most cases we can tell from other features, the path may follow a stream up hill, for example. For when we don't have those features, we have the compass. The compass, is a tool for converting directional information between the map and the ground.

The compass, as a conversion tool, works by virtue of having features that relate to the map and other features that relate to The Earth. On the map there are grid lines, on the compass these are represented by the orienting lines. On The Earth there is a magnetic field, on the compass there is a magnetic needle.

Taking a bearing from the map.

Lets assume we want to work out the bearing between two points so we can walk in a direct line between them. (From point A to point B).

1) Make an estimate

Have a guess at the direction in which you will be walking (roughly North-East or 45 degrees in the example on the right). By making an estimate you should avoid the embarrassment of being 180 degrees out. Set your compass to this estimate now.

2) Position the compass

Place the long edge of the compass along the path that you need to follow with the big (direction of travel) arrow pointing in the direction you will be walking i.e. the back of the compass should be at point A and the front at point B.

3) Turn the dial

Turn the dial so the orientating arrow is pointing up the map parallel with the grid lines. You should end up with a figure roughly what you estimated in step one. If it is vastly different you are probably 90, 180 or 270 degrees out. (Ignore the needle)

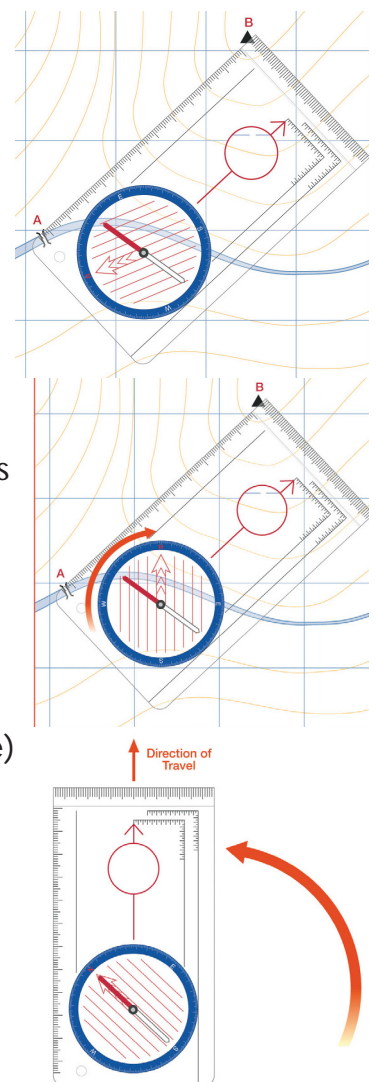
4) Add the magnetic variation

5) Align the needle

Take the compass off the map and line up the magnetic needle and the orienting arrow by holding the compass flat and turning yourself round on the spot.

6) Follow the direction of travel arrow

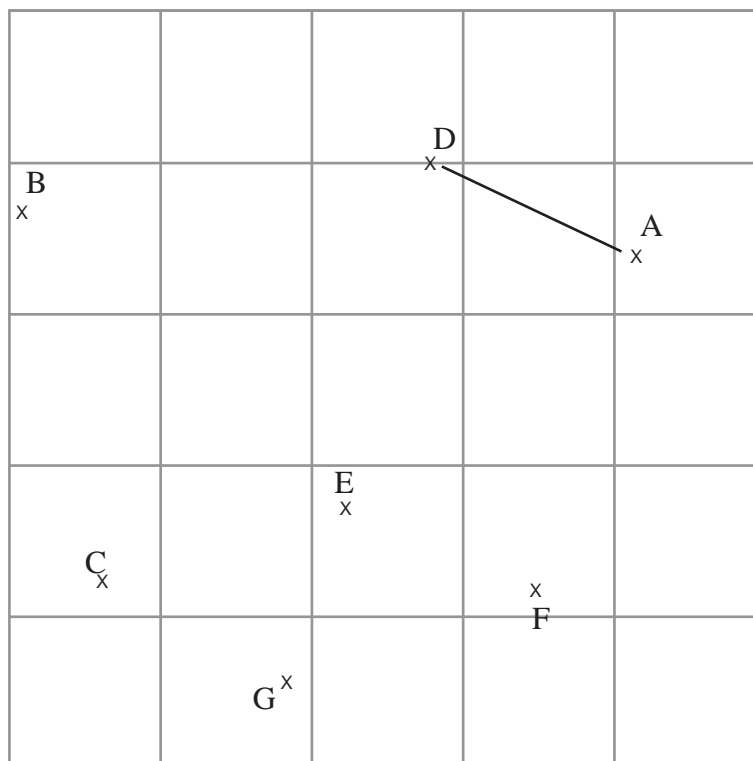
The 'direction of travel' arrow will point in the direction you need to walk in.



Taking Bearings

Fill in the sheet below taking the bearing between the different points. First make a guess and then use your compass to get an accurate reading

	Guess	Reading
A-D	<u>300 °</u>	_____
B-C	_____	_____
A-F	_____	_____
A-E	_____	_____
F-E	_____	_____
C-B	_____	_____
G-A	_____	_____
E-D	_____	_____
G-B	_____	_____



Grid References

On the map provided find the following grid references and write down the feature that you find there.

Grid Ref	Feature at location
.....
.....
.....
.....
.....
.....
.....

Magnetic Variation



Figure 1: UK With some vertical grid lines.

As we stated earlier the compass is a tool for converting directional information from the earth to the map and vice-versa. However, with this conversion there is an error. Below is an explanation of that error, information on how to find out what that error is and how to adjust for it.

Before we start there are 2 things you have to understand;

- 1) The grid lines on the map are NOT lines of Longitude. Lines of longitude converge at the North Pole. These grid lines are exactly 1km x 1km square. Each north-south grid line therefore points to a different place and not to the North Pole.
- 2) The magnet on the compass needle doesn't point to the North Pole either but somewhere north of the Hudson Bay in Canada.

As our system of grid lines does not match up to the earth's magnetic field, to convert from the bearing gained from the map to one that you follow on the ground you have to make an adjustment. This is the magnetic variation.

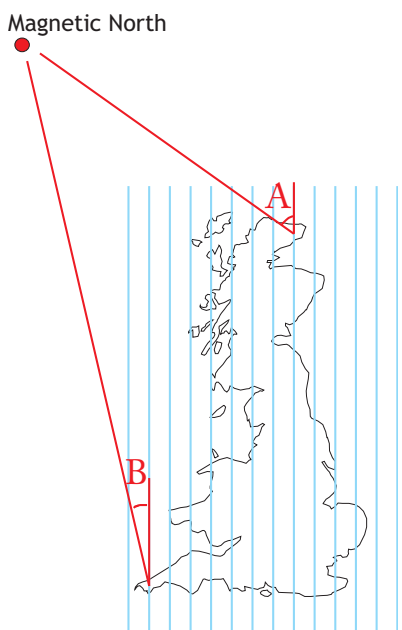


Figure 2: Magnetic variation is different in different parts of the country.

It gets more complicated. As each grid line points to a 'different north' but the needle on the compass always points to the same place, the variation is different depending on where in the UK you are. Figure 2 shows (in a vastly exaggerated form) that if you are in the South West the magnetic variation is smaller than if you are in the North East. Angle B is less than Angle A.

It gets worse. Magnetic north is moving. Magnetic North is moving to the East and therefore the difference is declining. Back in 2004 it was 5° in Cumbria. Now in 2010 it is 2°.

The rule, at present, is that if you are taking a bearing from the map and going to follow that bearing on the ground you add the magnetic variation and if you are working from the ground to the map you subtract it. The easy way to remember this is that the map is a small thing and the earth is a big thing so you have to add (make the bearing bigger) when going from the small

thing to the big thing. In time I expect this to be the reverse as Magnetic North passes across our grid lines.

To find out what the magnetic variation is where you are you have to look at the notes on a map. It will say something like. **Magnetic north** (make sure you are reading the bit about Magnetic North and not True North) is estimated at 2°24' West of grid north at the centre of the sheet for July 2009. Annual change is approximately 10' East.

So if it is July 2009 you know that you have to add 2.5° and it is moving a degree every 6 years (there are 60' in a degree) so in 2015 you will add 1.5°. In reality you never really add half a degree as our compasses only have increments in 2°.

Relocation when Lost

There will be times when you are not sure where you are. The key to good navigation is observation. When you are walking, keep looking around you. Keep a mental note of ALL tick features that you pass, not just the ones you identified from the map at the beginning of the leg.

Once you realise you are not sure where you are there are a few steps to go through.

1) Stop.

Don't look at the map yet, take a look around you to see if there are features that you will be probably be able to see on the map. A tarn or a ring contour for instance. You may be able to take a bearing on your path or down a valley.

2) Where were you when you last knew where you were?

How long ago was that? What direction have you been walking in since then? How far might you have walked in that time? What have you passed since and when?

3) Put all that together with what you can see on the map.

This is the tricky bit. It is a good idea to start with where you last knew where you were and work forwards following your route recalling what you passed (note: the route you took may be different from the route you were meant to take). All being well you should be able to identify your position with ease using the features you identified in step 1. Be very aware of the tendency to make things fit with what you can see when they don't in real life. Pay particular attention to scale.



What if that doesn't work?

If you are getting nowhere you may wish to consider one of the following courses of action

1) Move around a bit to see if you can see more helpful features. Don't go far but moving a short distance will often reveal new features.

2) Back tracking to a place that you knew where you were.

Learning how to relocate is more about looking around you rather than looking at the map. When lost, inexperienced navigators tend to start studying the map intently looking for clues. It is easy to be 10 meters from a tarn and not be able to see it if you are slightly below it. However, if you can see a tarn on the ground (and it is big enough) then it will be on the map.

Look around first, look at the map second.

It is lonely at the back: How to keep together

Within your team there will probably be differences in your natural walking speed. Some may be fast on the flat or particularly careful over rough ground. Some people are fast up hill but slow on the downs, some the other way round. It is important that you keep together so that you can all keep an eye on the wellbeing of your entire team and to stop anyone from getting separated and lost.

If someone gets left behind for much of the time then their morale can plummet creating a vicious circle. Being left at the back often leads to people not enjoying the expedition and then walking slower and slower. Keeping together is everyone's responsibility and is in everyone's interest. There are things that everyone can do to help make it happen.



The team's responsibilities

- 1) Don't leave anyone at the back. People will walk faster if you are engaging them in conversation.
- 2) If you wait for someone don't just get up and move off when they arrive. A simple question of 'do you want to take 5 or just keep going' will usually result in a response of 'just keep going' but just being asked can make a massive difference to the morale of the slower walker.
- 3) Some people who are struggling prefer to walk at the front for a bit, others will feel more of pressure if they are at the front so prefer not to set the pace, try mixing it up and see what works for your team.
- 4) Can you help in some practical way by re-distributing some of the kit from the slower member of the group, offering them walking poles or making sure they are fed and hydrated for example.

The individual's responsibilities

- 1) If you are asked if you want to stop or just plod on then think if you really do need to stop.
- 2) Don't moan and complain unduly. If you are miserable to be with then people won't want to be with you and you will get left behind.
- 3) When you stop for a rest don't just switch off. Think about what will help you, do you need a snack or a drink? Will removing a jacket help? Do you need to replenish your pocketed snack supply? Get yourself sorted quickly during breaks and maybe give yourself a head start over the rest of the group.
- 4) Eat and drink. If you are feeling tired then it may be partly due to low fuel levels.
- 5) Think of other ways that you can help the team. If you are at the back then you are probably not doing much of the navigation. Maybe you can help out more at camp.

Hazards and Route Planning

It is a dangerous world out there, full of all sorts of things that are exciting, fun and can injure you. When planning your route you should be aware of potential dangers and consider ways that you

can minimise risk. Some things, like farm houses with ferocious dogs, you can't really foresee, others you may be able to identify on the map and plan your route accordingly.

Some dangers you may wish to acknowledge and go there anyway, accepting an increased risk, others you may wish to avoid completely.

1) Water (streams, fords, stepping stones, lakes).

If you are crossing a stream you should use a bridge. Under no circumstances should you be wading through water. As a rule, if the water is deeper than the ankle of your boot then it is too deep. Wading through streams and rivers is never safe. You may have chosen a route that involves stepping stones, these should be treated with caution (especially when they are wet).



2) Falling down something (Shake holes, cliffs, mines).

On your map you may see cliffs, old mine workings, pot holes and areas of shake holes marked. Pay attention to these and under no circumstances decide to go exploring old mine workings.

3) Roads.

Avoid roads completely if possible, they are rubbish for walking on anyway. If you do need to cross a road or walk along a road for a short period then wait for everyone to catch up and gather together. Make sure everyone knows where you are going, what tick features you will pass and roughly how long it will take. Then execute the manoeuvre, in single file, as quickly and efficiently as possible. Don't chatter, concentrate. It is the reality that, even with all that dangerous countryside around, fast country roads and cars are probably your greatest threat.



4) Trips and falls.

Wear decent boots with a decent amount of tread (to give good grip), ask us about your planned footwear in plenty of time, we may be able to lend you a pair of boots from stores. Take particular care on steep or slippery ground.

5) The weather (hypothermia, lightening, flooding, hyperthermia, sunburn)

6) Farm animals.

Be aware of the potential dangers posed by farm animals.

The Country Code

The countryside is vulnerable to overuse and misuse by those of us who visit it. By taking a few precautions and following some common sense rules we can drastically minimise our impact on the environment.

1) Don't drop litter.

By litter we include not just paper and drinks bottles but also organic material such as orange peel and banana skins. These materials may take weeks or even months to rot down and look unsightly while they do.

2) Take care on roads.

Many country roads are narrow and cars often travel very fast on them. When you get to a road stop. If you are map reading brief the rest of the group on how far you will be walking and where you will be turning off. Then lead off walking in single file. Generally you should walk on the right hand side of the road. However, if the road is very narrow it may be safer to cross to stay on the outside of any bends. Please concentrate and don't chatter to each other until you are safely off the road.

3) Leave gates as you find them.

If you open a gate make sure you close it properly behind you or livestock may escape. If a gate has been left open then it is probably a good idea to leave it that way unless it is obvious that it has been done so through the carelessness of others and leaving it open may endanger people or livestock (a field of cows next to a road for example).

4) Don't go to the toilet close to streams, lakes or any other watercourse.

Ensure you are at least 30 meters from any watercourse before going to the toilet. If you need to poo ensure that it is well buried (15 cm deep). It is a good idea to burn any toilet paper then if it does get dug up by an animal there is not dirty toilet paper blowing about. If you can't bury it then current advice is to spread it out as thinly as possible using a rock to speed up its breakdown. Sorry... I don't make the rules.

5) Think about erosion.

If you are on a thin footpath through a meadow (for example) then walking in single file on the path will cause less damage to area than spreading out next to each other. Most footpaths are wide enough for two but if they are not then please don't widen them.

6) Take care around animals.

This is especially true if they have young with them, this is as much for self preservation as animal welfare. It is not a good idea to walk between a cow and its calf. Leave the footpath to go round them rather than creating this scenario.



7) Don't wash up in streams.

If you cook soup during the day or if you are camping next to a stream then please don't pollute the stream by washing up in it. If you need to wash up, fill a pan from the stream and take it away from the stream to do the washing up.

First Aid

With a little care the injuries below are often avoidable. Preventing them is much better than having to provide treatment. It is very rare to have a serious injury.



1) Blisters.

These are an irritation that can stop you completing an expedition if they become serious

Prevention: Wear well fitting boots and suitable socks, Try and keep your feet and socks dry.

Treatment: Apply a plaster, preferably a blister plaster, as soon as a sore spot develops. If a blister develops, do not burst it, but keep it covered with a blister plaster.

2) Burns and Scalds

Prevention: Use stoves sensibly. No smoking or naked flames in or near the tent. Protect against sunburn.

Treatment: Run cold water over the burn for at least 10 minutes. On campsites there should be a

tap, out walking you might be able to fill a bowl or a bag with water and immerse the burn in it, pour water from a bottle or dunk the affected part in a stream (if it is safe to do so). Take care not to get clothing or unaffected areas too wet (see hypothermia). After the cold water treatment cover the burn with a clean, smooth dressing.

Call your supervisor immediately if you suffer a burn or scald of any size. Call 999 if a burn covers a large area, involves charring of the skin or could affect the airway.

3) Breaks and Strains

This is probably the most common type of injury, especially in the outdoors.

Prevention: Wear good boots. Take special care when it is slippery, steep or uneven underfoot.

Treatment: Treat as a suspected fracture: Rest, Cool, Compress and Elevate as appropriate.

Call your supervisor if you have any such injury which may make it too painful to continue. Call 999 if you suspect any break to the femur (upper leg), skull, pelvis, neck or back.



Resting and cooling an ankle injury

4) Hypothermia (Also known as Cold Exhaustion)

This is most likely in cold wet and windy conditions. Illness and fatigue also increase the risk. Symptoms include complaining of cold, becoming less communicative, disorientation and loss of co-ordination.

Prevention: Wear warm, waterproof and windproof clothes as appropriate. Get sufficient rest and food. Early detection is important as treating mild hypothermia is quicker and easier than severe hypothermia. It is very tricky to detect in yourself so get into buddy pairs or threes and keep an eye on each other especially if the weather starts to deteriorate.

Treatment: Get to shelter (e.g. a tent). Remove wet clothing, once in shelter, and replace with warm, dry clothes or a sleeping bag. Drink warm drinks and eat high-energy food. Call your supervisor.

5) Heat Exhaustion

Heat exhaustion can occur due to loss of salt and water through sweating. Symptoms may include headache, dizziness, confusion, nausea, sweating with pale clammy skin, cramps and rapid weak breathing.

Prevention: Eat, drink and rest appropriately. Wear appropriate clothing.

Treatment: Get to a cool place or create some shade if this is not an option. Consider splashing water on exposed skin and fanning. Drink plenty of water, preferably followed by some water with a little salt in it or flat lemon aid. Call your supervisor.



Resting in the shade of some trees

6) Dehydration

Symptoms include feeling thirsty, very concentrated yellow urine, tiredness, disorientation, vomiting.

Prevention: Drink plenty of water, or water with fruit juice. A good idea is to drink lots when you arrive at a campsite, and again before you leave it, as you will have plenty of water on the sites, then top up from your bottle during the day.

Treatment: Basically drink. If you are suffering severe dehydration you will need to rest and drink small amounts of water at a time to prevent more vomiting.

**All first aid incidents, however small, must
be reported to your supervisor.**

In the case of minor incidents you may wish to inform them later in the day, when you see them next, but you should call them immediately if:

- An incident is serious enough that you are unable to continue walking, or
- you have to call 999, or
- you are in doubt about whether or not you should call them.

Emergency Procedures

Evaluate the situation

Apply First Aid if necessary.

Do you need help? If so do you need help from our staff or the Emergency Services?

If you don't need help do you still need to try to contact your supervisor? (Are you going to be late?)

Calling the Emergency services

If you decide to call the Emergency services from your location do so by calling 999 or 112. Even if you have no signal it often still works. If you require the services of mountain rescue (i.e. if the casualty is in a remote situation) ask for the police and tell **them** that it is a mountain rescue situation.

Be ready to tell them.

- 1) Number and type of casualties.
 - 2) Where you are, a grid reference or as close as possible.
 - 3) What your phone number is.
 - 4) Our contact details and ask them to contact us (assuming you cannot do so yourself).
- As we are in the area it is entirely possible that we will be able to get to you sooner.



Sending for Help

If you do not have phone reception you may have to send part of your group to get help

- 1) Decide where to go for help.
Make sure the people staying know where you have gone. You may elect to go somewhere to find phone signal or to the nearest house.
- 2) Write down all important information.
- 3) Make sure there are two of you going together.
- 4) Take enough equipment to ensure your safety.
- 5) Don't rush.

When you get in contact with us or the emergency services, get clear instruction on what you should do next.

Waiting for help

Once you have decided that you need help on the hillside you need to prepare for a potentially long wait for us or the emergency services to get to you. There is a lot you can do to make things more comfortable and to pass the time.

1) Keep someone with any casualties at all times.

Look specifically for signs of shock and hypothermia.

2) Keep checking on each other, is everyone warm enough?

3) Every few minutes blow your whistle (six long blasts).

4) Consider putting up a tent or two.

You will probably be in the same place for a number of hours waiting for help to arrive.

5) Consider getting someone to make a brew.

Hot drinks will help you keep warm and are great for morale.

6) Once things have settled down and you have the time, write a log of events.

Time of incident, time of phone calls, changes in casualty condition, first cup of tea, tents up. It will help you keep time in perspective.



This image depicts an emergency procedure role play.

These 3 have put up a tent to offer a more comfortable (warm and dry) area to wait for assistance

This person is sorting out the equipment that they are going to take when 2 of them go to raise the alarm

Under another tent fly sheet is the casualty and 2 other member of the team. The fly sheet is to keep the wind and rain off

The casualty has been insulated from the ground using a roll mat

Lupine Adventure Co-operative - Duke of Edinburgh's Award Kit List

Personal kit list that you should provide yourselves

Req	Pkd	
		Walking Socks
		T-Shirts
		Walking Trousers
		Underwear
		Pair of Gloves
		Warm Hat
		Sun Hat
		Sun Cream
		Personal Medication & Small First Aid Kit
		Watch
		Whistle
		Torch
		Spare Batteries / Bulb for Torch
		Notebook and Pen/Pencil
		Mobile Phone (fully charged but switched off)
		Water Bottle
		Food
		Emergency Food Rations
		Cutlery and Mug
		Lighter / Matches
		Small Wash Kit
		Towel
		Small amount of money for emergencies
		Strong Plastic Bags / Bin Liners (to line rucksack)
		Pair of Gaiters (optional)
		Trainers/Flip-Flops (optional)

Personal kit that we may be able to provide if necessary

Req	Pkd	
		Rucksack (approximately 65 litre capacity)
		Sleeping Mat
		Sleeping Bag
		Sleeping Bag Liner (optional)
		Waterproof Jacket
		Waterproof Overtrousers
		Pair of walking boots

Group kit that we can provide if necessary

Req	Pkd	
		Tents
		Cooking Stove
		Fuel for Stove
		Group First Aid Kit
		Maps
		Compasses
		Survival Bag

Group kit that you should provide yourselves

Req	Pkd	
		Tea Towel
		Washing-Up Liquid
		Pan Scourer / J-Cloths
		Plastic Bags (for rubbish)
		Camera (photos for presentation)



Tent use

The popularity of festivals and the cheap 'disposable' tent has meant that many people don't know how to look after them

properly. Our tents are used as much high up in the mountains in foul weather as they are in the sheltered valleys. They should be thought of not merely as tents but expensive and important emergency equipment. While you may be camping on a campsite in the Dales in August the next time your tent is used it may be in gale force winds on a mountain in a Scottish winter. Treat it well.

1) Before pitching - Check the site for stones and sharp twigs.

These will not only make your night more uncomfortable but may puncture the groundsheet and then let water in.

2) Don't lose the bags.

As soon as you take the tent, poles or pegs out of their bags put the bags in your pocket so they don't blow away.

3) Keep your tent clean.

Take your shoes off, try not to get mud on the side of the tent. Always tie back the doors when they are open. If a tent gets dirty this negatively effects its waterproofing.

4) Use the zips.

If you open the tent by simply pulling on the material this will weaken the zips and may cause them to break. If your zips break you may be in for an uncomfortable night.

5) Allow the tent to ventilate.

If your tent has solid inner walls then it is important to keep the inner door open a little. If you don't then condensation from your breath will collect on the walls and make the inside of the tent, you and your sleeping bag damp. Even if it is cold a small gap will keep you dryer and therefore warmer.

6) Don't smoke or cook in or near the tents.

A tent can catch fire in seconds burning anyone or anything inside it. Do not under ANY circumstances cook or smoke in the tents.

7) Dry the tent when you get home.

ALWAYS take the tent out of its bag and hang it up to dry when you get home (even if you think it is dry). If you don't hang it up to air it will rot and need replacing.



Packing a Rucksack

Much of packing a rucksack is down to personal preference. Here are some things to bear in mind which should make life easier and load carrying more

manageable. You will be walking for up to 8 hours a day with your rucksack on your back, it is therefore in your interest to make it as comfortable as possible.

There are two basic principles that you will want to follow when packing your rucksack, unfortunately the two principles sometimes conflict but do your best.

Principle 1: Heavy items should be close to your back, evenly weighted (side to side) and near the top.

This means you won't feel like you're being pulled off balance. It will also reduce the amount of pull on your shoulders. For instance, Place a heavy item like your tent under the lid rather than on the straps on the bottom at the back.

Principle 2: Items you may need should be accessible.

Pack your snacks, lunch, drinks, waterproofs, hat, gloves, torch and emergency gear near the top of the bag or in the outer pockets.

Other considerations, tips and tricks

The Sleeping bag.

It is common to pack the sleeping bag at the bottom of the rucksack. It is the least likely item to be needed during the course of the day and if your sleeping bag is at the bottom you know you can sit on the bottom of your rucksack without splitting food bags open or breaking anything.

Attaching things to the outside of the bag.

As sleeping mats are so light they can be attached by straps to either the top, side or bottom of the bag as preferred. It is best not to attach anything else to the outside of the bag - heavier items will make the load unbalanced and smaller items might get lost or damaged. You also look a lot more slick and together if you haven't got a pair of flip flops or a mug hanging off your bag.



Keeping things dry.

You should use a waterproof liner inside your bag to keep the big things dry - heavy duty rubble sacks or bin bags are good cheap options. Plastic freezer bags are good for smaller items. Do not just rely on the rain cover as it will fail after time.

Fitting your rucksack.

Make sure your rucksack is correctly adjusted to you. You can adjust the back length, the shoulder straps and the position of the hip belt. It will make a huge difference to how the weight is distributed and when you get it right, it will actually feel lighter. Get used to the routine of adjusting your pack every time you put it on and you will feel the benefit.

Packing a Rucksack

Below is a representation of a rucksack with top pocket, side pockets, main section and lower section. Draw in the items shown where you would place them. An approximation of the size of items is shown (though you may wish to change the shape of items such as clothes and food). Feel free to add things not listed.

The diagram shows a rucksack with the following compartments and items to be packed:

- Top pocket:** A small rectangular pocket at the top.
- Side pockets:** Two vertical rectangular pockets on the sides.
- Main section:** The large central area of the rucksack.
- Lower section:** A rectangular area at the bottom of the main section.

The items to be packed are shown in boxes with their names:

- Tent** (large box)
- Sleeping Mat** (large box)
- Sleeping bag** (medium box)
- Torch** (small box)
- Jumper, hat, gloves** (small box)
- Food** (medium box)
- Stove** (small box)
- Lunch** (small box)
- Fuel** (vertical box)
- Water** (vertical box)
- Waterproof Jacket** (small box)
- Waterproof Trousers** (small box)
- First Aid** (small box)
- Clothes** (large box)

1) Never use the stove within 3 metres of any tent.

Trangia use

2) Give the pans a rinse.
If you can smell meths in the pans then it is a good idea to give them a quick clean.

3) **Always** refuel away from the cooking area.
If the burner is too hot to handle then it is too hot to refill. Remember that meths can burn with a transparent flame so even if it looks empty, and you cannot see a flame, treat with care.

4) Screw the fuel bottle cap down immediately after use.
If you forget to seal the bottle properly you can end up with meths leaking inside your bag and over your stuff. The best time to secure it is when it is in your hand.



5) Position the burner in the base of the trangia and then light.

Do not hold the burner when lighting as you may spill meths when placing the burner back in the base.

6) Bring a lighter and matches.
The trangia is easier to light with matches but you should bring a lighter too as matches become useless if they get wet.

7) Use the Handle to hold the pan when stirring.
(Though don't leave the handle on the pan).
Holding the handle provides stability while stirring but if you leave the handle on the trangia it can get very hot.

8) **Don't** attempt to blow out the Trangia.
If you attempt to blow out the flame then you can blow flaming meths at anything opposite you or even into your own face. Close the simmer ring and use the handle to carefully place it over the burner (do not use the screw top).

9) Don't place the screw top on the burner until it is completely cool.
Inside the screw top is a rubber ring to stop it leaking. If you screw the cap on while the burner is still too hot it will melt this ring and meths will leak out into your bag.

10) Place the burner in a sound plastic bag before packing it up.



Expedition Menu Planning Principles

When out walking, particularly on multi-day trips, it is important to make sure you eat enough to prevent exhaustion and the associated problems and dangers.

There are a few things to consider when menu planning. As usual some of these factors conflict with one another so it is up to you to consider what is best for you.

1) Weight.

You have to carry everything you eat once you get going, it is obviously in your best interest to make it as light as possible.

Don't even think about carrying tins or glass jars.

Boil in the bag is heavier than dehydrated food.

Think about removing excess packaging but be careful not to remove cooking instructions you may want to refer to later.

2) Speed and ease of preparation.

If the weather is nice you may want to spend a bit of time relaxing on the campsite and cooking. If, however, it has been raining all day the last thing you are going to want to do is sit outside in the rain cooking.

Boil in the bag may be heavier than dried food but it is faster, easy to prepare and generally tastes better.

If you are buying pasta choose quick cook varieties, this will save both time and fuel. Consider practising cooking what you are going to cook at home on one hob.

3) Tastiness and variety.

You need your diet to be as varied as possible as eating the same thing every day can become really dull. I would try and get some fresh stuff in for the beginning of the trip and move onto the less tasty but longer life foods later.

4) Durability and longevity.

You need foods that will not be ruined or taste bad if they are squashed and won't leak out of any containers. If you have perishables make sure you are planning to eat them early and that you have a non-perishable equivalent for later in the expedition.

5) Calorific intake.

On expedition you will burn many more calories than usual. You should be aiming to eat something in the region of 3500 calories per day but this will vary from person to person.

6) When you get to the campsite.

When you get to the camp site you want to be eating as soon as possible. Have a snack as soon as you stop. Energy is replenished in the muscles much more effectively straight after exercise so eating immediately will give you more energy the next day. Next get your tent up in case it starts raining then start cooking your main meal.

7) Emergency rations.

Don't eat all your food on the last day. You must keep some back in case of emergency. Your assessor may well ask to see your emergency rations at the end.

Expedition Menu Planning in Practice

Breakfast

You won't have to carry your first breakfast so make it a BIG breakfast. Consider going to cafe near your start point as a team

building exercise. After that go for cereal, sweet porridge, flapjack or anything high in energy from your lunch stash as lunch foods and breakfast foods are pretty much interchangeable. Early in your trip croissants are great as they are full of fat and it doesn't matter if they get squashed but eat them quick as they will go stale.

Make sure you are fully re-hydrated before you leave the camp each morning as anything you drink now you won't have to carry.



Snacks / Lunch

Lunch shouldn't be an event but more a process. Eat little and often. Keep food in your pockets and snack throughout the day. Good snacking foods include packets of peanuts or fruit and nut mix, flapjack, energy bars, cereal bars.

If you stop for food some suggestions are oat cakes and pate (from a toothpaste like tube), heavy, stodgy cakes (for example Fruit cake, malt loaf, Jamaica cake), If you want to eat bread products choose flat bread like pitta bread or even tastier and longer lasting, tortillas.

Health food shops do loads of different dried fruits. You can get a dozen dried bananas in a pack about the size of a fist. Dried fruit is healthier and provides a slower release energy than chocolate and is pretty indestructible. Everyone should get into dried fruit for their expedition

Dinner

You want to get eating complex carbohydrate as soon as possible so skip your starter and get straight onto the main course. Noodles, pasta and rice all make good dinners, they are light weight, quick and easy to cook. They can be supplemented with other ingredients such as nuts, the odd carrot and packet sauces.

Many people choose boil in the bag foods. You can get a wide variety from outdoor shops and if you like curries you can get much cheaper and tastier ones from continental supermarkets. They are ready in minutes, create no washing up, generally taste pretty good and leave you with a pan of hot water to make a hot drink or soup with. The down side is that they are heavier to carry than dried foods.

After you have eaten your main course consider going back to your starter and making a cup-a-soup. Then you will be ready for desert.

Drinks

It is essential to drink enough to avoid dehydration. Drinking enough water is possibly the simplest way to do this. Weak solutions of cordial are also good.



Expedition Menu Plan

	Breakfast	Lunch	Dinner
Day 1			
Day 2			
Day 3			Gold Only
Day 4	Gold Only	Gold Only	

The Aim of the DofE Expedition

It is one of the 20 requirements of the expedition that it must have an aim.

Having an aim will hopefully:-

1. Give the expedition more purpose;
2. Help you to learn more about the landscape you are passing through;
3. Encourage you to look around you rather than spend 3 or 4 days looking at the next meter in front of you;
4. To help you prepare a more insightful and interesting presentation.

As with anything you HAVE to do, the best thing to choose is something you are genuinely interested in. If you are stuck for ideas then talk to your supervisor for more ideas specific to the landscape you will be passing through or read on for some generic aims.

Some ideas for Aims

Geography: Learn about the geography / geology of an area before your expedition and then take photos / notes / sketches to give the practical element to your study.



Mapping errors: Photograph and make a note of errors on the map. Your presentation can then be a comparison of what the map indicated would be there compared to a photograph of what it was actually like. You can even report your errors to Ordnance Survey so they can fix the errors in future maps.

Use of land: Old mine workings can be visually striking. Before you go out find out what was mined in the area and why then visit the sites of the mine workings. Other land use studies could focus on farms, field systems, tourism etc.

Transport: Many railway lines and canals have a long (and thanks to enthusiasts) well documented history that can be researched both at home and en-route.

Leadership styles: Take it in turn to lead the rest of the group (half a day or a day each). Discuss different leadership styles that each of you employed.

Morale: What affects morale? How can you anticipate a dip? What can you do to prevent your morale dropping?

Historical: Stone circles and standing stones, Old or derelict structures, churches and abbeys, roman roads.



Many more ideas can be found at www.dofe.org/go/expeditionaims/

The Aim of Our DofE Expedition

The aim of our DofE expedition is.....

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.....

	Work to do	Who is doing it
Pre Expedition		
On Expedition		
Post Expedition		
Presentation		

Ensuring Success on your DofE Expedition

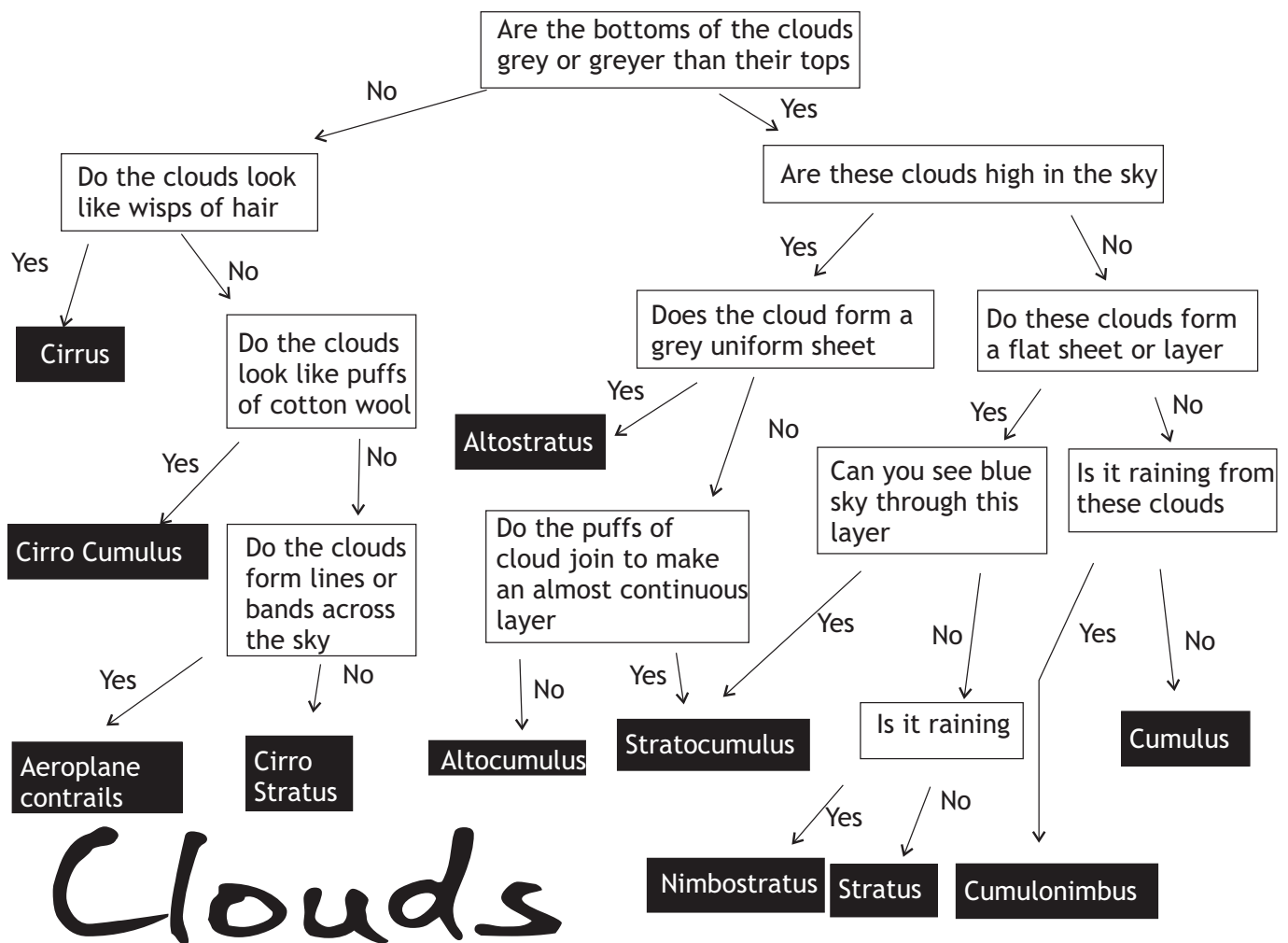
The Duke of Edinburgh's Award Expedition can be an extremely tough challenge. You will probably be walking for long periods of time for 3 or 4 days. On top of this you have to carry everything you need in that time and camp out. Most people who do not complete the expedition first time drop out through illness or injury. This is unfortunate, and to a certain extent unavoidable. You can reduce the chances of injury through practice, if you are used to your kit and walking with it then there is less chance that you will suffer an injury.

One of the 20 conditions of the expedition section of the award is that 'Your expedition must be unaccompanied and self-sufficient'. If, due to group safety or to combat 'bad' behaviour, we feel that we cannot leave you unaccompanied then your expedition cannot count as a qualifying expedition and will be converted into another practice.

This really doesn't happen often, won't be an out of the blue decision, and isn't anything to worry about so long as you are courteous, considerate and safe. Here are some examples of what could go wrong and tips to get you through.

The issue	The details	Possible solutions
Damage to property	Any deliberate vandalism may result in us not trusting you to continue alone. Don't climb or remove stones from walls.	Accidental damage does occur and is often unavoidable. However, this is sometimes due to thoughtlessness or carelessness. If your behaviour causes damage to property then change your behaviour.
Complaints from the public	Please keep your disruption to others to a minimum both on your walk and especially at camp sites.	When you turn up at a campsite introduce yourselves to your new neighbours. People are less likely to be annoyed by any late night noise if they like you and feel able to approach you about it.
Deliberate littering	We will check your campsites and often your lunch sites.	Get a bag for litter sorted in your group immediately you start cooking. Never put any litter on the floor, put it straight in the bag. Make sure nothing is left outside your tent at night or when it is unattended. Always do a litter sweep after camping or having lunch.
Inability to navigate	If it is clear you cannot navigate safely then we will have to accompany you. We will give further instruction to help you prepare for another qualifying expedition.	Everyone gets lost every now and then, this is nothing to worry about. If you do find yourselves getting lost frequently then you need to get a grip of the situation and pay more attention to the task in hand.
Unsafe cooking procedure / fire hazards	Don't chuck stuff around while people are cooking.	Incidents around fire safety are rare but extremely serious when camping. If you are cooking then concentrate on the cooking. If others in your team are cooking don't fool around in that area.
Short cuts	Stick to your route (unless unsafe to do so)	Try and plan a route which is a straight forward A-B journey. If you do have to include a dog leg we will probably be watching you at that point so don't be tempted to take a short cut.

Lupine Adventure Co-operative route card										Team Name:			
Day of venture		of				Walking Speed in KM/h				Time added (in seconds) per 10m of height climbed			
Date:		Direction or rough bearing of leg	Distance in km	Time estimated	Height climbed metres	Extra time estimated for height	Time for Stops, Meals, (h:mm)	Total time for Leg	Time at End of Leg	ROUTE INFORMATION Include your handrails, tick features, catchments and overshoots.	Escape in Emergency to:		
Start:													
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TOTALS FOR DAY													
Supervisor's Name, Location, Phone:													
NOTES 1 Start a new Route Card for each day. 2 Escape Route - insert only those places to which an escape may be attempted from a hazard or emergency. 3 Time is added on for height climbed. No allowance for descent. If you go up 40m down 20m and then up another 30m your height climbed should be 70m													
Group Members		1	2										
3		4	5										
6		7	8										
9		10	11										
Emergency Phone Numbers													
Excel file downloaded from www.lupineadventure.co.uk													
Version 3.3 (June 2013)													



Cirrus

Cirrus show that there is a lot of wind high in the atmosphere which means that the weather is probably about to change. Often seen before a warm or occluded front.

Cirro Cumulus

Often called mackerel sky. Formed when the top of the troposphere is colder than what is underneath. Often found in the warm sector before a cold front arrives.

Aeroplane contrails

Aeroplane trails form when the upper air is very cold which makes the water in the gas coming from the engines condense and form cloud. Often seen in an anticyclone

Cirro Stratus

Cirrostratus is like cirrus but thicker and it tells us that the weather is about to change. Often seen towards the end of a ridge and before a warm or occluded front.

Altostratus

Forms when large areas of air are moving slowly upwards. Can be seen before a warm or occluded front.

Stratocumulus

Forms when the air high up is warmer than it might normally be. This happens during anticyclones. These clouds are responsible for anticyclonic gloom.

Alto cumulus

Forms when the air in the middle of the troposphere is much colder than the air below. Often seen in the warm sector before a cold front.

Nimbostratus

Formed when large areas of the troposphere are moving gradually upwards. This is the cloud which makes the rain in warm, occluded and cold fronts.

Stratus

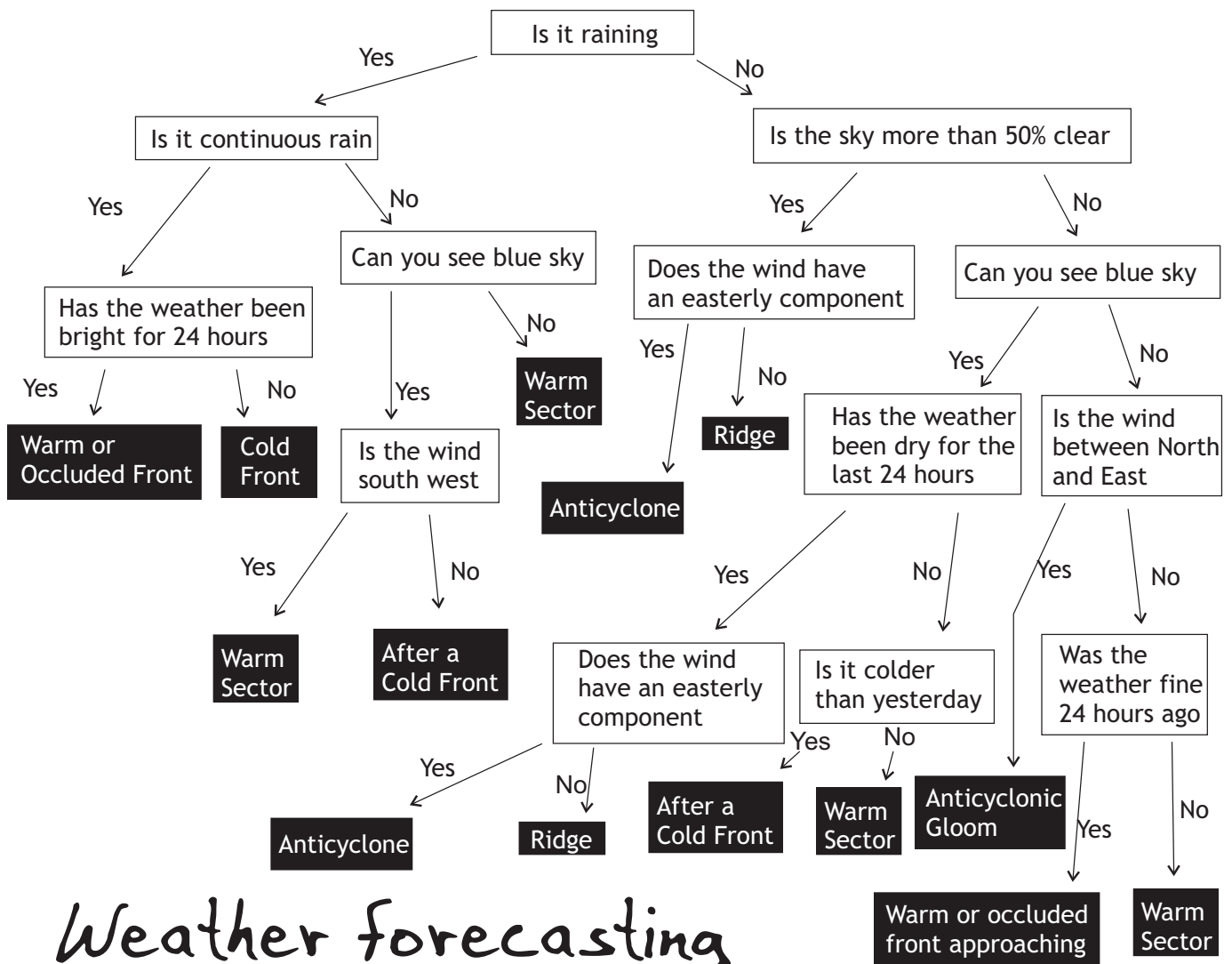
Formed when the air is very humid and often produces drizzle. Usually found in the warm sector.

Cumulonimbus

Formed when the surface of the Earth is much warmer than the air above it. Often found after a cold front, but also at the end of an anticyclone or ridge in the summer

Cumulus

Fair weather cloud. Found when there is a ridge of high pressure in the warm sector or near the coast during an anticyclone where they show that there is a sea breeze



Weather forecasting

Warm or Occluded Front

The rain will continue for a few hours before being replaced by a period of bright and breezy weather with the possibility of showers. The weather will continue to be unsettled for the next day or so

Cold Front

The rain should soon clear. To be replaced by sunny, blustery colder conditions with fairly frequent and heavy rain showers. The outlook is for a spell of cold bright weather before rain comes in once again from the west

After a Cold Front

The theme of occasional heavy showers will continue until the showers die away and the wind eases to make way for a spell of fine weather

Warm Sector

Present weather will continue for a while until heavy rain and strong winds come in from the west this will clear after about six hours to be replaced by a spell of bright blustery and showery weather

Anticyclone

The fine weather is set to continue for the foreseeable future bringing warm days and cool nights.

Ridge

The fine weather is set to continue for the next day or so before the sky fills with high cloud which will thicken to give a prolonged period of heavy rain

Warm or occluded front approaching

The layers of high cloud will thicken and it will begin to rain within the next few hours. The rain will last approximately eight hours before clearing to give a spell of brighter dryer weather

Anticyclonic Gloom

The gloomy weather is likely to persist for the next few days. However some lucky areas may occasionally see the sun

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2 Day high level mini-expedition

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Mountain Skills

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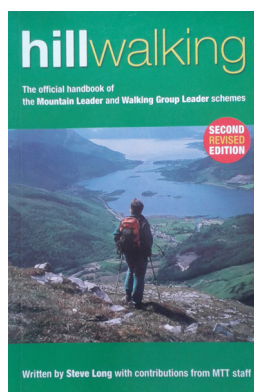


As well as our free expedition training resources we also offer the following services to schools, youth groups and individuals.

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- Expedition training courses for students in a residential setting or on your premises.
- Practice and qualifying expeditions for participants that you have trained.
- Open expeditions for those who missed out of their expedition or had to drop out due to injury or illness.
- Training for teachers and youth workers on teaching navigation and remote supervision.
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