



***Scottish Winter Meet 2021***

***February 13<sup>th</sup> – 20<sup>th</sup>***

***Inchree, Onich, Scotland***

***Information evening 20<sup>th</sup> October 2021 7pm***

***Online***

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## About the meet

### Where is it?

Mountaineering Ireland will be basing the 2021 Scottish Winter Meet at Inchree Centre in the Onich, between Fort William and Glen Coe in the Western Highlands of Scotland. This is a great location for Ben Nevis and the 3 sisters of Glen Coe. Inchree Centre offers a variety of accommodation including bunk houses, hostels, chalets and B+B. There is also a restaurant and bar on site, check out [www.inchree.co.uk](http://www.inchree.co.uk)

### Who is it for?

The meet is a similar format to the extremely successful MI Summer Alpine meet, all walkers and climbers are encouraged to participate, whether on one of the 'official' instructed training courses or on a more informal "do your own thing" basis. The ethos for the meet is to bring together like minded people to share in the experiences of days on the hills, evening talks and slide shows and plenty of late night discussions! Whether on a course or just coming along informally all participants are asked to book through the MI office.



### What courses are on offer?

We will be running three levels of courses:

**Winter Walking Skills (self-catering) 14 - 16<sup>th</sup> February and 18 - 20<sup>th</sup> February**

**Ratio 1:6** This course is for hill walkers who would like to learn fundamental snow skills and develop their experience from summer to winter walking conditions.

**Cost: €260** for 3 days with qualified and experienced instructors.

**Winter Mountaineering Skills (self-catering) 14 - 16<sup>th</sup> February and 18 - 20<sup>th</sup> February**

**Ratio 1:4** This course is for walkers and climbers who have done some winter walking and want to develop their skills further in more challenging terrain.

**Cost: €310** for 3 days with qualified and experienced instructors.

**Winter Climbing Skills (self-catering), 14 - 16<sup>th</sup> February and 18 - 20<sup>th</sup> February**

**Ratio 1:2.** Minimum of 2 people required. This course is for those who would like to tackle routes requiring an ice axe and hammer. Previous rock climbing and winter mountaineering experience required. **Cost €470** for 3 days with qualified and experienced instructors.

**Aspirant/Youth (18-23yrs) Mountaineering Meet 14 - 16<sup>th</sup> February and 18 - 20<sup>th</sup> February**

Mountaineering Ireland will be running 2 x 3 day Youth Mountaineering Courses at the Winter Meet. These courses are strictly dependent on a minimum of 6 participants for the **Youth Winter Walking Skills course (€150pp)** and 4 for the **Youth Winter Mountaineering Skills course (€180)**. Please contact the Training Office for more details on this.

#### **Discounts:**

We are offering a 10% discount on the price of courses\* booked before 27/12/2020. We are also offering a 20% discount on group bookings (club/private, but not through the aspirant/youth mountaineer scheme) on our Winter Walking Skills and Winter Mountaineering Skills courses, (not Winter Climbing Skills). In order to qualify for the 20% group rate reduction\*, you would need to book and pay up front for 6 participants on the Winter Walking Skills Course and 4 on the Winter Mountaineering Skills course. The deadline for this discount is 08/01/2021

Please note that you can only avail of one discount or the other.

\* Discounts only applicable to course fees and do not include travel or accommodation

#### **Level 1 – 3 day ‘Winter Walking Skills’. Ratio 1:6 - Minimum of 3 people required (6 for Youth/Aspirant Mountaineers”**

#### **Who is it for?**

This 3-day course will cover the core skills required to help make you safe whilst hill walking and mountaineering in the UK and Irish mountains under winter conditions and encourage you to go on and explore for yourself. Winter hill walking is arduous so a good level of fitness will allow you to cope with what at times can be harsh and physically demanding conditions.

The actual programme is flexible with the instructor basing the 3 days around the topics below.

- Selection and organisation of personal kit appropriate to winter hill walking.
- Movement skills on snow including kicking steps and using the ice axe for walking, self belay, cutting steps and self arrest.
- Use of crampons in ascent/descent.
- Emergency procedures including digging and use of emergency shelters.
- Avalanche awareness and safe route choice.
- Core techniques of winter navigation including poor visibility techniques.
- Route planning in winter taking into account weather, conditions and avalanche risk.
- Evening sessions include a winter hazards talk and avalanche awareness talk.

## What will I need to bring?

Listed here are the essentials - this is not an exhaustive list.

- Thermals or suitable under clothing
- Insulating layers – at least one mid weight and one warm fleece layer
- General trekking trousers are recommended, not jeans though.
- Thick socks (several pairs)
- Spare fleece/insulated jacket
- Waterproof jacket (with a good hood)
- Waterproof over trousers or salopettes
- Helmet and harness
- Hat & balaclava plus spare
- Mitts & gloves - a thin pair, thick pair & big mitts over the top! Plus spares.
- Ski goggles (should have double lens to avoid misting up, you cannot see, or map read without them in strong winds and snow).
- Whistle
- Compass - Silva type 4 recommended
- Maps and waterproof map case. For

- all walking courses you need a waterproof 1:50,000 map of Glencoe
- Head torch, essential in winter. LED lights are excellent for map reading at night but do not necessarily give a beam to see well ahead. Many torches now offer a combination of bulbs which gives great flexibility.
  - Rucksack liner (or sturdy bin liner)
  - Vacuum Flask & Water Bottle
  - Box or bag for packed lunch.
  - Survival Bag - Plastic type
  - Blister kit/ small first aid kit
  - Personal toiletries & medications
  - Sun cream
  - Spare towel
  - Alarm clock

Note. There is a limited supply of walking axes and crampons, but these can be hired in Fort William.

## **Level 2 - 3 day 'Winter Mountaineering Skills' Ratio 1:4 – Minimum of 3 people needed, (4 for Youth/Aspirant Mountaineers)**

### Is it for me?

This three-day course introduces the technical skills to tackle winter gullies and 'scrambling' type terrain, up to grade I/II, on Britain's mountains. It is an ideal follow on from the winter skills course, but makes the assumption that you have good solid core winter movement skills. For example, you can use of an ice axe in both ascent/descent, cramponing etc. Summer scrambling experience would be useful. Previous winter walking experience (including use of axe and crampons) is essential.

**Note:** This is not a technical winter climbing course. The ground used during the week is winter scrambling type terrain rather than snow and ice gullies.

The actual programme is flexible with the instructor basing the 3 days around the topics below.

- Developing competent and confident movement over grade I/II winter snow and 'scrambling' type terrain. Any climbing should be viewed in the above context. It is not about teaching participants to climb technical gullies etc. Look at it in terms of a hill walking team tackling some of the harder peaks where they may need to ascend a steep section of snow to access easier walking terrain, and may want the added security of a rope. Conversely they may be looking to descend what is in summer an easy slope, but in winter, with snow build-up and cornicing may pose a more serious challenge.
- Initial technical sessions will cover basic rope work and belaying using the rope alone and a sling and krab, including holding sliding leader falls.
- Use of harness and body belay.
- Constructing and using snow anchors (such as buried axe, snow bollard and Deadman) and selecting and using natural rock anchors.
- Abseiling on snow anchors (rope alone).
- Avalanche awareness and risk assessment and its implications for safe route choice.
- Winter navigation to and from the climb.
- Evening sessions include a winter hazards talk and avalanche awareness talk

### What will I need to bring?

Listed here are the essentials - this is not an exhaustive list.

- |   |  |
|---|--|
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|---|--|
- Note. There is a limited supply of axes/hammers/ crampons, but these can be hired in Fort William.

### Winter Climbing Skills, Ratio 1:2. Minimum of 2 people required

This course is for those who would like to tackle routes requiring the use of an axe and hammer. Previous rock climbing and winter experience required.

The actual programme is flexible with the instructor basing the 3 days around the topics below.

- Developing competent and confident movement over grade II/III+ winter snow and mixed terrain. It is about teaching participants to climb on more technical and varied terrain where the added security of a rope is essential.
- Participants will be refreshed in the technical aspects of belaying, anchor selection and belay construction using snow and rock anchors.
- Abseiling/descending from a route.
- Stance management.
- Route choice and selection.
- Avalanche awareness and risk assessment and its implications for safe route choice.
- Winter navigation to and from the climb.
- Evening sessions include a winter hazards talk and avalanche awareness talk.



## What will I need to bring?

Listed here are the essentials - this is not an exhaustive list.

- Thermals or suitable under clothing
- Insulating layers – at least one mid weight and one warm fleece layer
- General trekking trousers are recommended, not jeans though.
- Thick socks (several pairs)
- Spare fleece/insulated jacket
- Waterproof jacket (with a good hood)
- Waterproof over trousers or salopettes
- Helmet and harness
- Hat & balaclava plus spare
- Mitts & gloves - a thin pair, thick pair & big mitts over the top! Plus spares.
- Ski goggles (should have double lens to avoid misting up, you cannot see, or map read without them in strong winds and snow).
- Whistle
- Compass - Silva type 4 recommended
- Maps and waterproof map case. For all walking courses you need a waterproof 1:50,000 map of Glencoe
- Head torch, essential in winter. LED lights are excellent for map reading at night but do not necessarily give a beam to see well ahead. Many torches now offer a combination of bulbs which gives great flexibility.
- Rucksack liner (or sturdy bin liner)
- Vacuum Flask & Water Bottle
- Box or bag for packed lunch.
- Survival Bag - Plastic type
- Blister kit/ small first aid kit
- Personal toiletries & medications
- Sun cream
- Spare towel
- Alarm clock

**Note.** *There is a limited supply of axes/hammers/crampons for hire from Mountaineering Ireland, but these can also be hired in Fort William.*



## Accommodation at Inchree

**PLEASE BOOK ACCOMMODATION EARLY- BEFORE DECEMBER - TO AVOID DISSAPOINTMENT.  
It is your responsibility to ensure that you have booked accommodation.**

Inchree Chalets & Bunk Rooms are located in the picturesque village of Onich, midway between the Ben Nevis & Glencoe mountain ranges, (20 minute drive to Ben Nevis, 10 minutes to Glencoe.) walkers and climbers are spoiled for choice. The Mamore Mountains are a 20 minute drive away also. Go to [www.multimap.com](http://www.multimap.com) for an OS map showing where it is.

Established nearly 30 years ago, and continually owned & managed by the Heron family, Inchree offers a combination of self-catering chalets, rooms & hostel accommodation, all complimented by an on-site Pub-Restaurant.

All accommodation is purpose-built and offers a high-quality, good-value holiday-base to individuals, couples, families, groups or clubs.

Set within private & naturally wooded grounds, the centre has superb panoramic views overlooking Loch Linnhe and the Ardgour Mountains. Inchree is a small hamlet, conveniently situated off the A82 main road, yet secluded enough to offer peace and quiet. From the doorstep you can take walks in Glenrigh Forest, reaching the impressive Inchree Waterfalls, which drop over 100 metres in a series of steps, or take an evening stroll along the shoreline, taking in the marvellous sunsets that occur.

Inchree Chalets & Rooms,  
Inchree,  
Onich,  
Nr. Fort William,  
Highland Region,  
Scotland,  
PH33 6SE

**To book accommodation, please contact Inchree direct on +44 (0)1855 821287 or e-mail: [stay@inchree.com](mailto:stay@inchree.com) stating that you are attending the MI winter meet.**

**Please do not use the booking system on their website as not all accommodation available for that week may be listed.**

For directions to Inchree Centre please visit <https://www.inchree.com/location>

Tel: 01855 821287  
Tel: (International) 0044 1855 821287  
Mobile: +44 (0)772 0068111  
E-mail: [stay@inchree.com](mailto:stay@inchree.com)

**PLEASE BOOK ACCOMMODATION EARLY- BEFORE end of **DECEMBER** - TO AVOID  
DISAPOINTMENT.**

## Travelling to the Winter Meet

By plane:

- You can fly with Ryanair to Glasgow Prestwick Airport.
- From there you can either hire a car or take a bus or train to the centre of Glasgow. (30 minutes) From Buchanan Street Bus Station in the city centre, you can get a bus to Inchree.
- Services from Glasgow to Inchree by [Citylink](#).  
(Note, the stop you need to get off is at **Corran**. From there, Inchree is just a 100 metre walk south.)
- [Stagecoach](#) is a local bus service linking Fort William to Onich

By Rail:

The nearest rail terminal is in Fort William, part of the Glasgow-Mallaig line. There are several connections per day to and from Glasgow Queen Street Station. Rail timetable information is available from [National Rail](#) or [Scotrail](#).

OptionsfFrom Fort William:

- A local bus; [Stagecoach](#) (Go to page 15 for Fort William to Inchree times.) or:
- A [Citylink](#) bus. Citylink operate between the main towns / cities in Scotland. Connections from Inverness, Oban, Edinburgh, Glasgow & Isle of Skye all pass Inchree.
- A **taxi** to Inchree, about £12 one-way.

By ferry:

In order to have the shortest drive from the ferry to Inchree you will need to get the ferry from Belfast to Stranraer.

You can get the ferry from Dublin to Hollyhead but it will be a lot longer drive up to Inchree

## Equipment for the winter meet

### Keeping warm

I have never failed on a route because of my clothing, but I have certainly had a more miserable time. The secret to enjoying winter mountaineering and ice climbing is to pay attention to the simple things, such as adjusting your layers.

The basic principle is to climb cool and belay warm. It is difficult to stay dry in winter - either sweat or a winter storm will make you damp but try to stay dry at all costs even if it means moving more slowly!. This is particularly important for those that have more body fat hence a slower metabolism and slower circulation because they warm up slower and cool down faster, plus a lower metabolism means there is less heat to dry out base layers. When climbing, long pitches can save time, but when the weather is nasty or cold, shorter pitches will help to keep everyone warmer.

### Keeping your body warm

A base layer and mid layer fleece with a waterproof over the top is usually enough when walking, but vary them to reduce sweating. When you reach your climb, or part way through the day, change into a dry base layer. Fleece and fiber pile are hard to beat. Modern soft shell windproof fleeces with waterproof membranes take longer to dry and do not provide as much insulation.



Carry extra warm clothing for when you stop moving and do not leave it too late; put an extra layer on before you are really cold. Make sure there is enough room to move in your waterproof jacket and trousers or salopettes and to put another layer on underneath, but they should not be too loose; cold air exchanges easily with the warm air inside. Cuffs and openings must keep the snow out and be easy to adjust with gloves on. A large hood is essential to pull over the top of your helmet or fleece hat and all the zip toggles must have a tag large enough to grab hold of with gloves on. Legs radiate less heat and sweat less, so good, well-fitting trousers are important. You can wear long johns underneath a thinner pair of trousers.

Removing your waterproof to add a layer when you are wearing a harness is a problem, instead try layering on top with a synthetic high loft insulated jacket (belay jacket) such as the ME Trango. If you need a small packed size and more warmth go for a down filled jacket, but if you want something easier to look after and insulates better in the wet then use synthetic fill.

## Protecting hands

Keep your core temperature up and your hands dry (so don't put wet hands into gloves). Your wrist has the third highest heat loss of the body so make sure your layers are long enough, and make some fleece wrist-over's. Carry a waterproof shell glove or mitt and lots of thin and thick fleece gloves with sticky palms. Change them whenever they are wet and your hands cold (a new pair for every pitch when climbing). Avoid gloves with a floating liner because they are difficult to get on and off, and carry a pair of fleece mitts that are easily accessible at belays and for when it is really cold. Attach all gloves to your wrist by a keeper cord.

Putting on only thin gloves can actually make you colder. The addition of a thin layer of insulation actually increases heat loss through radiation until a thickness of about 1/4 inch is reached.

If you are doing a lot of walking with your hand on top of your axe, you will lose heat through conduction. Consider taping a piece of thin closed-cell foam over the top. Do not grip your ski poles or axe handle too tightly and keep 'hand warmer' packets handy for putting in gloves, and even your boots, or carry a charcoal warmer in your pocket. To warm cold fingers, place them on the back of your neck for a few minutes. Do not blow on your fingers or into your gloves, it will only make them damp.

## Keeping your head warm

Wear a fleece hat, balaclava or even a neoprene beanie under your helmet. A fleece neck gaiter or a fleece jacket with a hood will seal your neck and prevent heat loss during long belays.

## Looking after your feet

Your feet have little muscle bulk and it's much easier to keep them warm than to warm them up. On long belays, avoid standing on snow, weight your feet equally and stamp your feet when they start to chill. Try to minimise the body closing down the extremities by dressing according to the route and climate, and don't scrimp on leg protection.

Put your feet into warm boots, and keep your feet dry, even if it means changing your socks during the day. Wear gaiters. Foot powder with aluminium hydroxide can help to reduce perspiration.

## Other equipment

**Rucksacks:** A simple 45-55 litre rucksack with a lid or pocket and compression straps is big enough. You do not need crampon pockets and ice axe tubes etc, they just add weight and get caught on everything when climbing. A removable padded, lightweight waist belt is best for climbing.  
**Eye protection:** Snow reflects a lot of the sun; even when the sun is not shining, the glare can be intense. Take sunglasses and goggles for navigating in a blizzard.

**Helmets:** Essential for winter climbing: make sure your balaclava or fleece hat can fit underneath and it has an attachment for a head torch. Because of the amount of falling ice in winter a classic style helmet may be better than foam ones.

**Harnesses:** Make sure it will fit over all your clothing and you can go to the toilet wearing it.

**Ski poles:** They are better than ice axe in winter when carrying a heavy sack or on easy angled safe ground. Buy a pair that can collapse small enough to fit inside your rucksack.



## **Boots:**

A good, well-fitting pair of boots with room for your toes to wriggle is essential for warmth. Leather boots are great on mixed routes, in less than arctic conditions especially in countries where the climate is drier because they provide a more precise feel. However, plastic boots are warmer, more supportive for ice climbing and are more waterproof, but they are sometimes heavier and less sensitive. Plastic boots are best if you are also camping because the inners can be removed and brought inside to stop them freezing. In general, the harder the climbing becomes, the lighter and more closely fitting the boot must be. This is because calf pump can originate from your heel rising up the back of the boot.

Boots suitable for winter use will be stiffer and have a sharp edge to the sole for edging in snow. To make the issue of boot/crampon compatibility more straightforward, boots and crampons can be graded according to their basic design and intended use. However, not all manufacturers follow the system designed by Scarpa.

## **Boot Compatibility**

Graded B0 to B3, dependent on the stiffness of the sole and the support provided by the uppers:  
B0 – Flexible walking boots. Any boot that can be bent more than half an inch or so when standing on the front edge will be unsuitable for use with any type of crampon.

B1 – Stiff mountain walking boots suitable for occasional use with C1 crampons only.

B2 – Very stiff mountaineering boots suitable for use with C1 or C2 crampons only.

B3 – Fully rigid, winter climbing and mountaineering boots suitable for use with C1, C2 or C3 crampons.

**Crampons:** Crampons and boots make an integral unit and using the wrong type of crampon on the wrong type of boot can break them or make them fall off the boot. Modern hard mixed climbers use a boot (fruit boot in Canada) with a bolt-on crampon - if you climb M12 you will know all about them. A good general mountaineering crampon will do a better job on waterfall ice than a waterfall ice crampon will do in the mountains!

They are graded C1 to C3, depending on their attachment method and flexibility, but there are some models that seem to fit somewhere between C2 and C3. When buying crampons, always take your boots with you and fit the crampons in the store. Manufacturers' crampons are all slightly different - some suit narrower boots, some suit boots with a thicker sole, some won't fit boots with too much of a 'rocker' (curved section of the sole). For those of you with narrow feet, avoid crampons that have a wide spread between the front points and think about how long the points are...They may be too long.

C1 - Lightweight articulated or flexible, walking crampons with simple straps. Most commonly 10 point (2 front and 8 bottom). They are light, simple, and a good choice for occasional use (low angle snow, glacier crossing).

C2 - Articulated or flexible step-in crampons attached with a heel clip and toe strap. Most commonly 12 point (4 front and 8 bottom). They give the best balance between ease of attachment, walking comfort and climbing performance. They are a good choice for general mountaineering and low to mid-grade climbs.

C3 – Stiffer, or even fully rigid, crampons (although the latter are becoming rarer) attached with a heel clip and toe bail. They usually have 12 or more points, and adjustable front points (mono or dual). They are the best choice for pure ice and climbing performance, but a pain for general mountaineering/walking.

The front points: These should stick out by 25-35 mm. Front points that are drooped and the second row angled forward are more suited to ice climbing. The angled second points reduce calf

strain by resting against the ice. Downward facing second points facilitate a more ergonomic walking motion

Best for ice climbing

Gives a more ergonomic walking action for general mountaineering

Horizontal front points are more versatile and work better than vertical ones for pure ice climbing, and two are better than one. Vertical front points tend to come out of the ice easier when the heel is raised. However, vertical mono points do provide more precision and are the best choice for very steep, hard ice and mixed ground. But, if the route is predominantly firm snow or ice, stick with two.

### **Tips for fitting and using crampons**

The sole of your boot should match the shape of the crampon, with no large gaps.

A correctly adjusted crampon should remain attached to the boot with the straps and clips undone.

Put crampons in a crampon bag and carry them inside your pack.

Trim the straps to a sensible length – long, dangling straps can get caught on the other crampon, but allow enough for gaiters.

Check before use. Ensure all boots and screws are tight, that straps are not cut or damaged, and that there are no cracks in the linking bar or crampon itself.

If you forget anti-balling plates, use a plastic bag and tape but don't expect it to last very long.

Carry some plastic ties, a strap, some cord and a small nut and bolt to repair crampons

### **Crampon attachment**

There are three main attachment systems:

Strap on - These may be useful in exceptional circumstances e.g. high altitude boots, because they will fit any boot, but they can restrict blood flow and are difficult to put on. They have been superseded by a plastic heel cup and plastic front bail and are found on most C1 crampons. They will fit on boots without a heel and toe lip.

Step in - A wire toe bail fits over the boot welt and a heel tension lever snaps into place on the heel welt. An ankle strap is also typically part of the system. It's a secure system for plastic boots and leather boots with plastic soles that have deep notches on toes and heels. However, without the proper boots, you risk losing a crampon in mid-climb. Correctly fitted, these are fast, vibration free and easy to use but, for most climbers, a mixed binding is better because they are easier to put on when your boots are iced up and safer as the welt wears out.

Mixed - These are simple and efficient and suitable for most things. The heel attaches with a lever similar to step-in bindings. The toes, however, attach with a strap and a ring or a plastic bail at the front. Because they don't require significant notches at the toes, these bindings can be used with lighter mountaineering boots, without heavy welts, and are used by most climbers, except specialist steep waterfall ice climbers.

Anti-balling plates are essential to prevent the build-up of snow on the underside of crampons, especially in wet snow conditions. The traditional remedy is to tap your crampons with your ice axe, but this is awkward, time consuming and distracting.

## Choosing an ice axe

Your ice axe acts as a walking stick; a self belay in the event of a slip occurring; and a brake if a slip turns into a slide. It can cut steps, bucket seats, snow bollards, large steps for resting or organising equipment, pits for checking snow profiles, emergency shelters, and can act as a buried axe belay. It is used for climbing ice, hard snow, frozen turf or even rock. No other piece of winter equipment - and the skill to use it - is more important than an ice axe.

Most axes can perform most of these tasks, but no single design will perform all the functions equally well. An axe that is a convenient length for walking will be awkward to climb with, and a pick set at a shallow angle for an efficient self-arrest will not perform so well when climbing. How an axe feels is important - if it is not a comfortable fit in your hand and the swing nice then there will be little incentive to have it ready to use. Where the weight is distributed in the head will change the swing of the axe. Make sure the shaft is small enough for you to grip it with gloves on.

## Ratings and standards

There are two CE marks (European standard – see [www.uiaa.ch/?c=310](http://www.uiaa.ch/?c=310) for details) for ice axes:

B-rated (Basic) axes - intended for hill walking and glacier walking. They have shafts strong enough to use as a belay anchor.

T-rated (Technical) tools - intended for climbing and mountaineering. They are 30-40% stronger to allow for more extreme use and abuse (such as torquing the picks into cracks).

The picks also have B and T ratings with the T rated picks being thicker to withstand the side to side stress test. However they are not as good for penetrating ice. Whichever you use it is very difficult to break an ice pick.

### Walking axe

Predominantly for use as a walking stick on flat or easy angle slopes, to arrest a fall, climb grade 1 gullies, and occasionally to cut steps.

Shaft - The length of an ice axe for general use has generated quite a debate over the last few years. The steeper the slope, the more experienced you are, and the more proficient your are on crampons, the shorter the axe can be. It does, of course, depend on the length of your arms and how tall you are - 60 to 70 cm is a good place to start. Longer axes are un-wieldy and get in the way if the slope does become steep but are the best for walking on easier angled slopes.

Weight - Light is right and B rated is enough.

The head - Consisting of the pick and the adze, this should be a one-piece construction, with a gentle curve. If the curve of the head is too flat, it is unstable when self-arresting and climbing; if it is too steep, it will tend to snatch and can be wrenched out of the hand. The adze should be a good size, slightly scooped and at an angle that continues the curve from the pick. The hole in the centre of the head is for the attachment of a leash.

The spike - A long, sharp spike can be harder to hold if you need to ice axe arrest.

Materials - Most axes are made from composite materials that are extremely strong. Wooden axes may not be strong enough when used as a belay. Light is right, but be careful, ultra-light axes are not as good at penetrating hard snow.

#### General mountaineering axes

A general mountaineering axe is a balance between performance for walking and low-grade climbs (up to grade 3/4) or winter scrambles. It should be well balanced and have a natural easy swing.

The shaft - A length of 60 cm is a good place to start. It is usually straight, but gently curved models have a better swing and do not compromise their ability to be plunged into the snow although on easy angled slopes (less than 60) they have no advantage. A recent improvement to shaft design is the hand rest; it makes gripping easier and helps stop you banging your knuckles against the ice. The hand rest does not appreciatively affect plunging the axe into the snow. Make sure the diameter is small enough for you to hold with gloves on. Some ultra light models do not have a spike, which is not a problem in hard firm snow but they can become blocked and do not work well in ice.

Weight and strength - The axe will be T rated and have a stronger construction overall to make it versatile and durable. Light is right, but this must be balanced against how well it cuts into the snow. A rubber grip on the shaft will keep your hands warmer, dampen vibration and help you grip the axe, but it can make it more difficult to plunge into hard snow.

The head - A more curved pick gives better hooking, but shouldn't be too steep otherwise it may snatch during self-arrest. The adze may be larger, but still follow the curve of the head, for easier step chopping and digging.

**Note.** *There is a limited supply of axes/hammers/crampons for hire from Mountaineering Ireland, but these can also be hired in Fort William.*