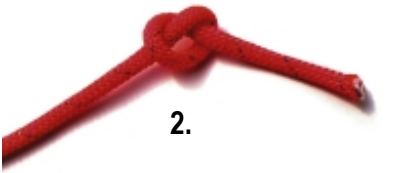
Ropework

Ropework

Stopper Knots

Stopper knots are used as a temporary method of stopping a rope from fraying or as a method of locking other knots which may be prone to loosening.
These knots are:

The Overhand Knot
The Figure of Eight Knot



Overhand Knot

The Overhand Knot can be used to create a loop by doubling the rope and then tying the knot.

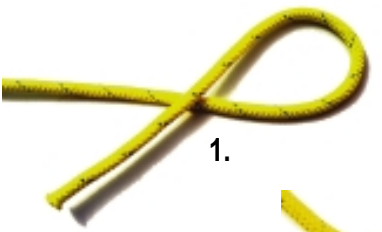


Figure of Eight

Reef Knot

Joining Knot

Joining knots are used for joining ropes together. The Reef Knot and the Fisherman's Knot are used when joining ropes of the same thickness together, whereas the Sheet Bend is better suited to ropes of different thicknesses.

The Joining Knots are

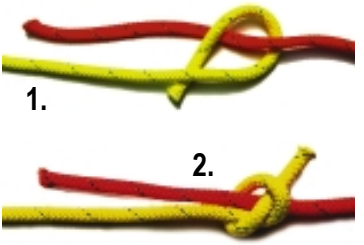
The Reef Knot
The Sheet Bend
The Fisherman's Knot

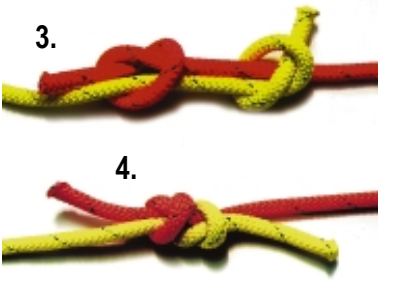
The Reef Knot is used for tying bandages, because when tied it lies flat.

Sheet bend

When tying with light and heavy lines and braided rope it will be necessary to secure with a stopper knot or complete a number of turns as it Stage 4

Fisherman's Knot





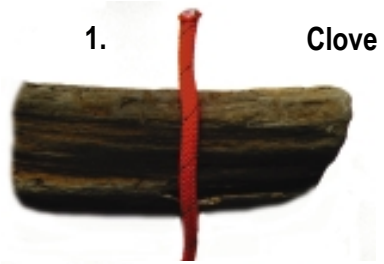
This knot is particularly useful for tying fishing lines together.

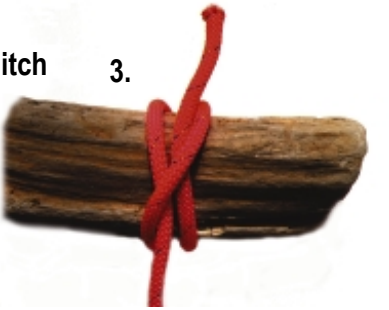
Fixing Knots

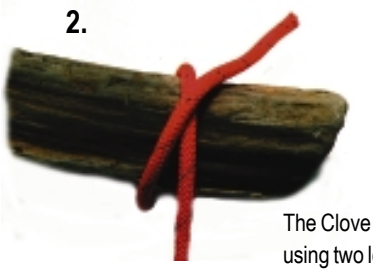
Fixing knots are those knots which are best suited to fixing a rope to a pole or object. The Clove Hitch and the Round Turn and two half hitches are the main knots used for fixing. The Marlinespike Hitch is used for attaching the rungs to a rope ladder. When you need to drag a log or start a diagonal lashing you use the Timber Hitch. The Highwayman's Hitch is a fun knot which can be used to fix a rope to a branch so as to climb up or down a tree. The beauty of this knot is that it can be removed, from the ground, by pulling on the slip loop. The fixing knots are:-

The Clove Hitch
The Round Turn and two half hitches
The Highwayman's Hitch
The Marlinespike Hitch
The Timber Hitch

Clove Hitch



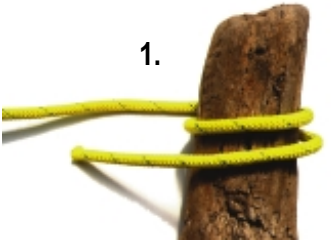




The Clove Hitch is always used for fixing to a pole when starting a lashing

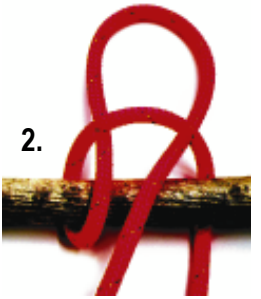
The Clove Hitch can also be tied using two loops which are passed over the top of a pole.

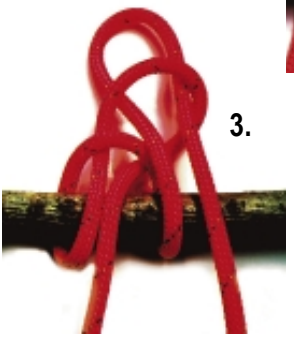
Round Turn and two half hitches



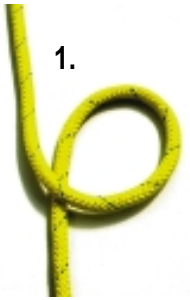
This knot is normally used to secure a rope to a tree or pole as it will not slip under strain. It is normally used in boating for tying up a boat to the pier.

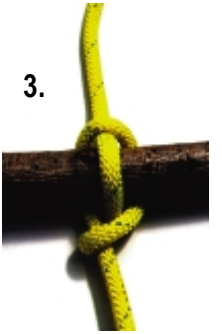
Highwayman's Hitch



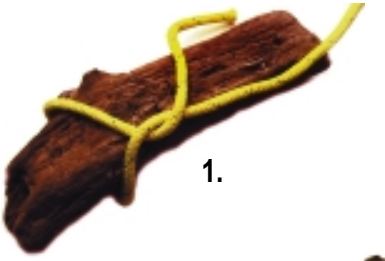


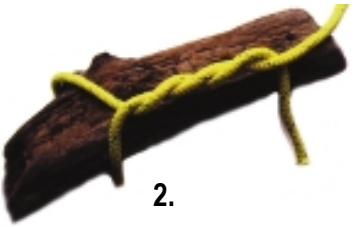
Marline spike Hitch





Timber Hitch





Strain on rope keeps knot in place.

Loop Knots

The Bowline, Figure of Eight loop and Manharness Knot are essentially climbing knots. Each knot creates a loop that will not slip under strain. The Bowline is normally used to tie yourself onto the end of a rope. The Figure of Eight loop is used to attach a rope to a karabiner, however it can also be used to tie yourself on to the end or middle of a rope. The Manharness Knot can do the same job, but is normally used to tie on the middle of a rope.

Bowline

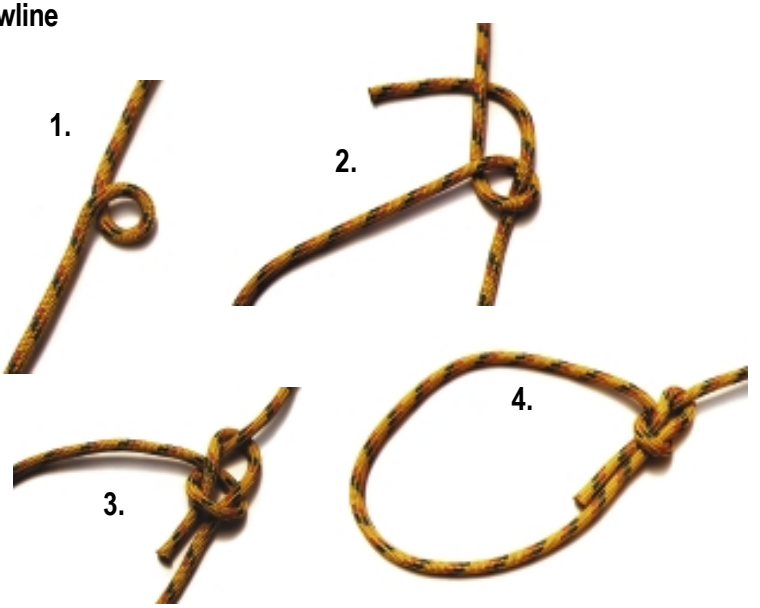
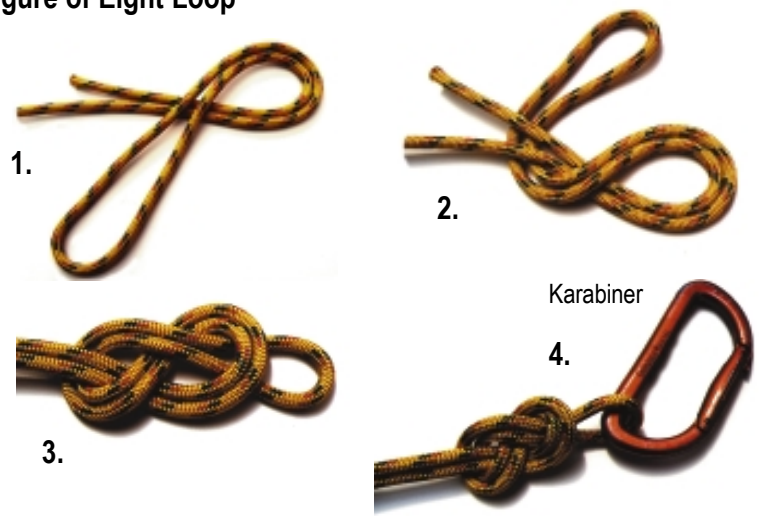


Figure of Eight Loop



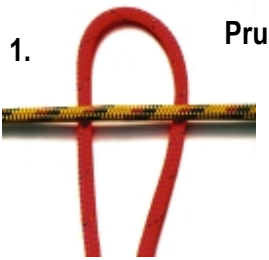
Basic Figure of Eight Stopper knot

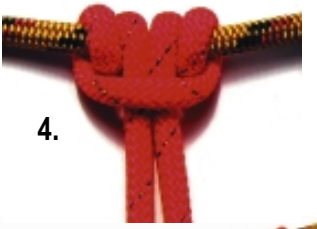
Manharness Hitch

Friction Knots

Two friction knots are illustrated here. They are the Prusik Knot and the Italian Hitch. Both knots are normally used in climbing and caving. The Prusik Knot has an unusually feature; it is non-slip when under pressure and can be slid along a rope when pressure is remove. It is a useful knot for climbing up a rope. The Italian Hitch is used with a karabiner and allows a person to be lowered down a rope, under control, due to the friction created between the karabiner and the rope.

Prusik Knot





Italian Hitch

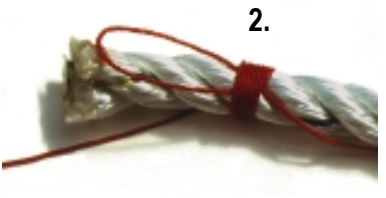
This part of the rope is held by the climber.

Karabiner is attached to climber's belt or belay.

Load or strain on rope.

Whipping

In order to prevent a rope from fraying a whipping is applied to the end of it. Nylon and plastic ropes can be prevented from fraying, by sealing their ends. This is done by melting the fibres, using a candle or soldering iron.

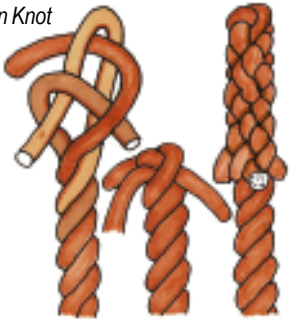


Place end of whipping thread through loop before pulling loop under whipping to secure.

Pull this end of thread to pull loop under the whipping.

Splicing Ropes

Crown Knot

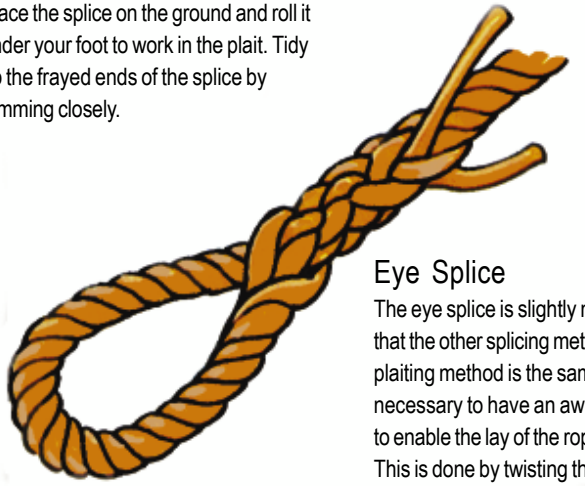


Back splice

A back splice is used to prevent a rope from fraying. It is created by unravelling about 120 mm of the rope end. The first step is to make a Crown Knot. Then taking each strand in turn plait it back into the rope. This is done by skipping one lay of the rope and passing the strand under the next. Move to the next strand and repeat this process until all the strands are plaited back into the rope. Place the splice on the ground and roll it under your foot to work in the plait. Tidy up the frayed ends of the splice by trimming closely.

Long splice

A long splice is used to join two ends of a rope. The first step is to unravel about 120mm of the end of each rope. The strands are spread apart and placed together equally as shown. The rope is then plaited as with the back splice - skip one lay and under the next. Tidy up ends when finished.

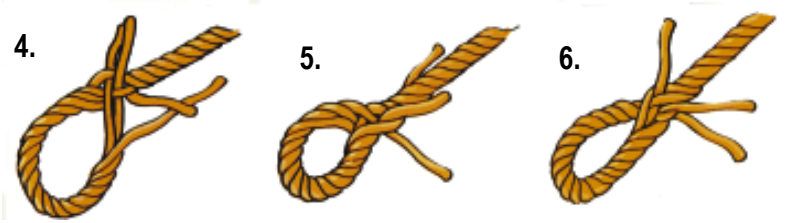


Eye Splice

The eye splice is slightly more complicated that the other splicing methods, however the plaiting method is the same. Normally it is necessary to have an awl or pointed dowel to enable the lay of the rope to be opened. This is done by twisting the rope and pushing the dowel between the lay to create a hole so that the plaiting strand can be passed through the lay of the rope.

Eye Splice

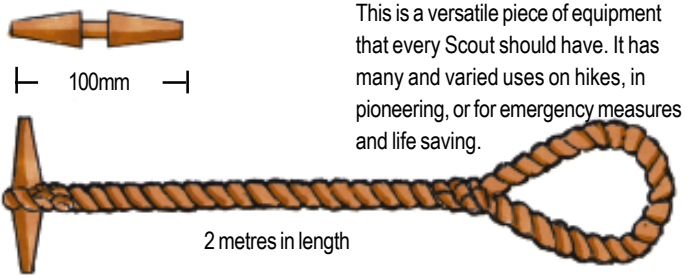
Unravel the end of the rope by about 120mm. Turn the rope to create the loop. Observe the lay of the rope. It will have 3 strands and it is necessary to place a strand under each lay of the rope. Be careful not to get your strands crossed - under the same lay - otherwise the splice will not plait correctly. When the strands have been placed equally under the 'lays'- plait the rope as in the back splice - skip one lay and under the next. Tidy up the ends when finished



Commando rope

The toggle rope came into prominence during the second world war, especially with commandos, who often, in the course of their duties had to scale walls, climb cliffs, cross deep rivers. Most of the tasks required large quantities of bulky rope to be carried. Rather than burden a few men with such an awkward load, each soldier was given a piece of rope about 2 metres in length, and 20mm - 25mm in diameter, with an eye splice on one end and a toggle on the other, secured by means of another eye splice. The open eye splice was large enough to allow the toggle to fit through with no danger of the toggle slipping.

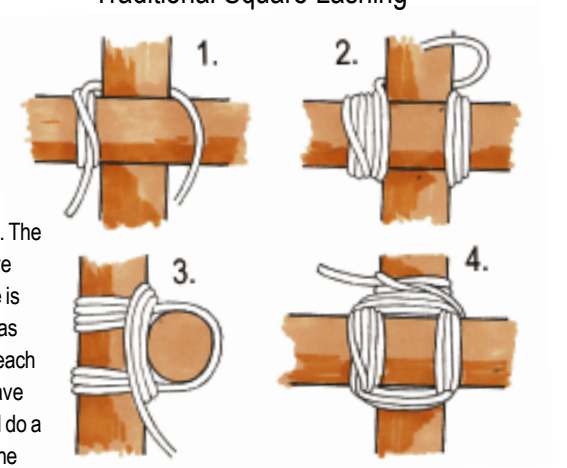
This is a versatile piece of equipment that every Scout should have. It has many and varied uses on hikes, in pioneering, or for emergency measures and life saving.



Lashings

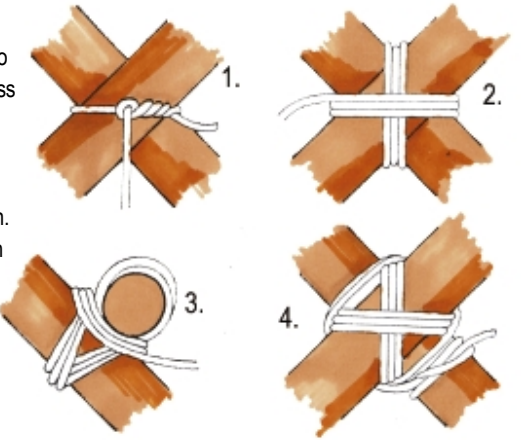
Lashings are knots which use a combination of knots and wrapping to create a binding which holds poles together securely.

Traditional Square Lashing



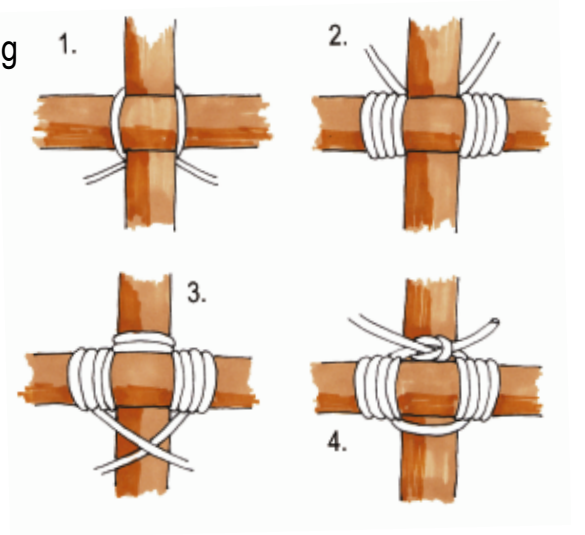
Traditional square lashing
This lashing is used for joining poles that cross at right angles. The lashing is started using a Clove Hitch. The free end of the rope is then passed around the poles as shown and pulled tightly after each turn. When five or six turns have been made, twist the rope and do a number of frappings between the two poles. The frappings pull the wrappings together and tighten the lashing. Finish with a Clove Hitch on the opposite pole.

Diagonal Lashing



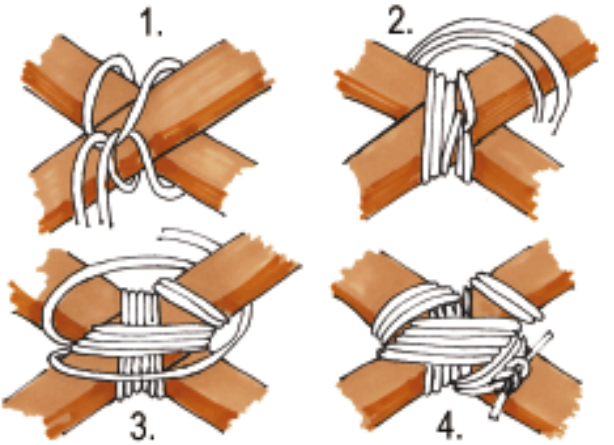
The diagonal lashing is used to lash together poles which cross each other at an angle. This lashing is started by using a timber hitch. Once secure the wrapping is created as shown. Then do the frapping and finish with a Clove Hitch

Norwegian Lashing



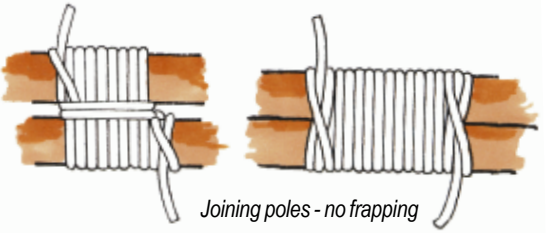
The Norwegian Lashing is easier to lash and results in a tighter lashing due to the fact that you are tightening the rope against itself. The lashing is created by halving the lashing rope and starting at the middle, around the upright pole. Make four wrappings by pulling and changing over the lashing ropes. Then create a number of frappings in a similar fashion. Finish the lashing with a Reef Knot

Japanese Lashing



The Japanese Lashing is similar in technique to the Norwegian lashing. Start by halving the lashing rope and creating a secure loop around the poles. Use the two strands to make the wrappings as shown. Switch the direction of the wrappings so as to have two single strands working in opposite directions, best done around a pole and frap the lashing. Finish with a Reef Knot

Sheer Lashing



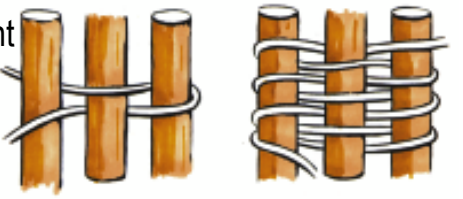
Sheer legs lashing with frapping

Joining poles - no frapping

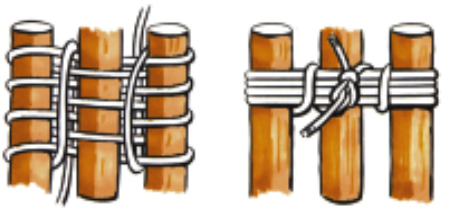
The sheer lashing is used to join two poles together to create sheer legs when the butt of the poles are spread apart and to create a long pole and keep them parallel. In the case of joining poles two lashings are required, one at each end of the overlapping poles. Start with and finish with a Clove Hitch. Wrap and frap as shown. In the case of sheer legs one lashing is required.

Tripod or Figure of Eight Lashing

Traditional Tripod lashing

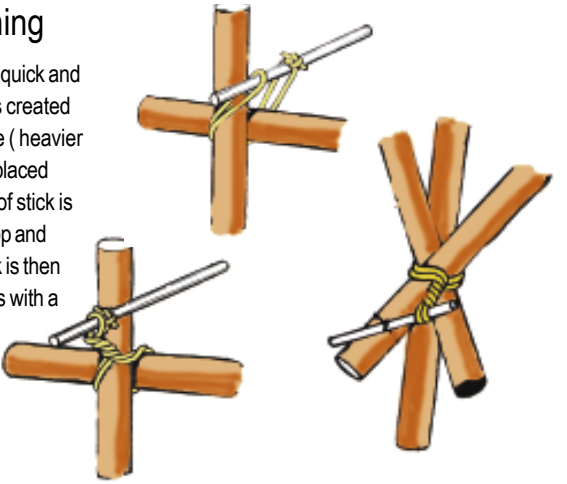


Danish Tripod lashing

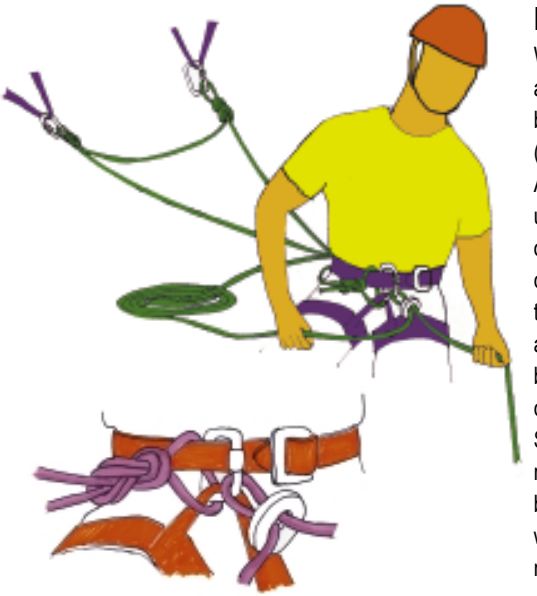


Tourniquet Lashing

The tourniquet lashing is a quick and easy lashing to create. It is created using a closed loop of rope (heavier than normal lashing rope) placed around the poles. A piece of stick is then placed through the loop and twisted until tight. The stick is then secured to one of the poles with a piece of string



Rope management on rock

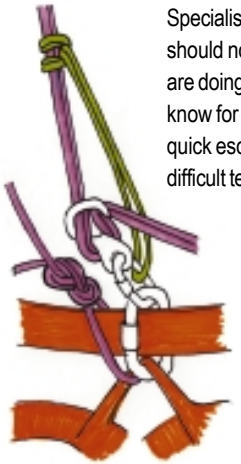


Belay

Whenever you work with ropes at a height it is necessary to belay yourself to a fixed object (rockface,wall) to prevent a fall. A belay is the method that is used to tie yourself to this object. This is done using certified equipment such as tapes, climbing ropes, chocks and metal pegs. A belay should be fixed to at least two points in case one point fails.
Setting up a belay correctly requires training and should not be attempted unless you know what you are doing. Your life may depend on it.

Abseiling

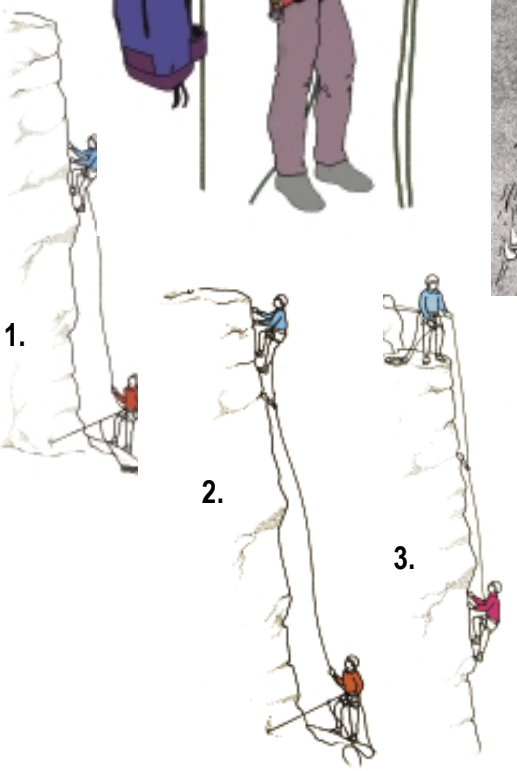
Abseiling is a means of lowering yourself from a height, using a rope in a controlled manner. It is not a sport in itself but rather a technique used in rock climbing, mountaineering and caving. Specialised training is required and abseiling should not be attempted until you know what you are doing. The technique is an important skill to know for emergency situations, in the case of a quick escape in bad weather, to assist people on difficult terrain, or in case of an accident.

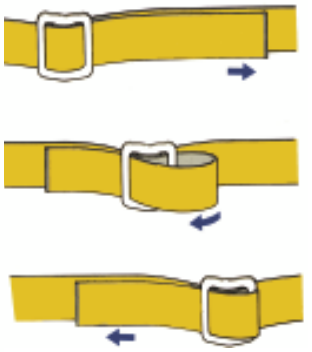


Climbing technique

The lead climber climbs first and as he/she climbs they place 'protection devices' in small cracks and slots within the rock face. If they fall, the 'protection device' will stop or slow down their fall. The second climber protects the lead climber - loosening and tightening the rope as required. When the lead climber has completed the climb, or a section of the climb, known as a pitch, he/she then belays himself/herself and brings up the second. The second removes the 'protection devices' as they climb.

How to climb up a 'chimney'.





Rock climbers use specialist climbing belts which are designed to prevent injury in the event of a fall. The belts also have anchor points and loops to connect ropes and equipment to the them.

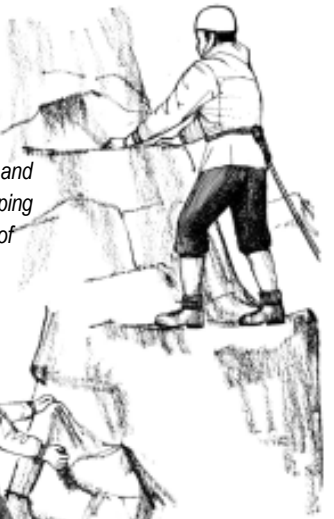
Safety helmets

Safety helmets are a must for all rock climbing activities. Helmets are made to standard sizes and all have adjustable strapping. When you place the helmet on your head adjust it to suit, and tighten strap under the chin.

Karabiners

Karabiners are standard climbing equipment. They are strong metal links which are used to connect equipment and ropes to the rock and the climber. 'Screw gate' karabiners are preferred for safety reasons.

While walking and climbing mountains you will often find that you have to scramble over small outcrops of rock and steep ground. This is, technically, not rock climbing and often you may not need a rope. However it is advisable to carry and use one for safety. The climbing of a rock or outcrop is done by technique rather than brute force. Your legs provide the lift and your hands grip and balance - just like climbing a ladder. You do not pull yourself up by your hands.
When climbing, you move one limb at a time, three points of contact should be maintained at all times. Move slowly and carefully and never jump for a hold.



Move slowly and carefully keeping three points of contact.

Handholds come in all sorts of shapes and sizes and often you will have to move and manipulate your fingers to get a good solid grip.