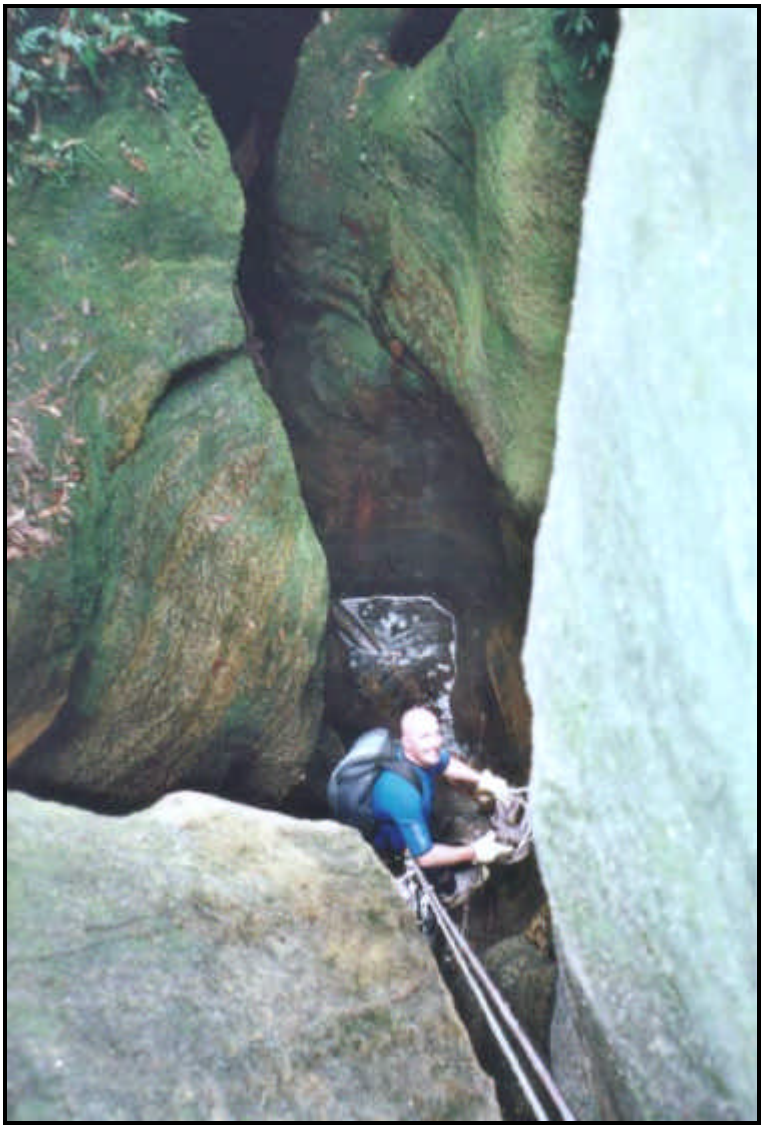
Blue Mountains Canyoning FAQ Guide



The short slot abseil into Serendipity Canyon

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The latest version of this guide can be downloaded from:
www.alternatezone.com/canyoning

DISCLAIMER

Canyoning can be a very dangerous activity, and it is very easy to get lost, sustain a serious injury or much worse. Canyoning requires experience and training in bush walking, navigation, route finding, abseiling, rope skills, self rescue, scrambling, rock climbing, water skills and many other aspects, it is not something that should be attempted alone by the inexperienced.

This guide is not designed to teach canyoning or abseiling. Expert advice and training should be sort before using any information contained herein. The author(s) shall not be held responsible in any way for the use of the information contained in this document.

NOTES:

This Canyoning FAQ is designed as a general discussion style guide to canyoning in Australia, with particular emphasis on the Sydney Blue Mountains region. Although a good majority of the guide would be relevant to canyoning in any part of the world. It was originally written as part of the aus-bushwalking FAQ.

Canyoning is a very diverse and sometimes personal topic and opinions can vary greatly between experienced individuals on even the simplest of matters. For instance, many a debate has been waged over Figures 8's v's Racks, what knots to use, abseiling techniques, whether wetsuits or helmets are required, or if GPS's are a worthwhile tool etc. This FAQ is designed to be as unbiased as possible, and present as much relevant material as possible so you can make up your own mind. The emphasis though is on safety, so for example the use of wetsuits and helmets etc is encouraged.

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Clubs, Commercial Companies, Group sizes, Guide Books

Clubs

Most bushwalking clubs also partake in canyoning activities and are more than happy to have new people along and show you the ropes so to speak. They mostly operate in the summer time during canyoning season, although there are a few who also do the "dry" winter canyon trips as well. Some clubs go out every weekend or more during the peak season. There are few if any groups or clubs devoted entirely to canyoning, although this is bound to change with the increasing popularity of canyoning. The recent insurance crisis has meant that some groups no longer run abseiling or canyoning trips.

The OzCanyons Yahoo! group sometimes organises informal trips, and people offer to take out beginners. This group is well worth joining, and is an excellent way to share experiences and get help from other canyoners. As is the aus.bushwalking usenet group.

If you are new to canyoning then it really pays to go with an experienced group, and a bushwalking or canyoning club is an excellent way to start. Many groups will also take you to some of the lesser known canyons which aren't described in the guides.

Many clubs have minimum safety requirements for canyoning, such as the use of wetsuits, helmets and proper shoes.

Commercial Groups

There are quite a few commercial canyoning/adventure companies that operate in the Blue Mountains. They take anywhere from 1 person to 10+ people (usually beginners) through the popular canyons at any one time. It is not unheard of to find more than one commercial group in a canyon at any one time, although they usually schedule their trips to avoid one another.

Most if not all of these groups are professionals, and they are a good place to start if you want to experience canyoning for the first time without having to buy any equipment or learn canyoning skills. Although be prepared for less than personal attention if you are in a large group, one instructor/leader often cannot lead the group and teach at the same time, they are usually fully guided tours. If you are after specific canyoning training then a few groups also offer beginner to advanced courses in canyoning, self-rescue and canyoning leadership techniques.

If you are out canyoning in your own group then it is not uncommon to get "stuck" behind a commercial group (or even more often, large private groups) at abseils and other bottlenecks in a canyon, as having so many beginners on a trip often leads to lengthy delays. In this case, if your party size is small you might like to ask kindly if you can overtake them, most commercial groups are happy to let you do this but it is their call on the day. Some groups will even let you use their rope. Canyoners are usually pretty nice people :)

The commercial groups are more frequently encountered in the most popular canyons such as Empress (Valley of the Waters), Claustral, Grand, and Rocky Creek/Twister. On weekends in summer, it is uncommon not to find a commercial group in at least one of these canyons.

Leaving early (which is always advisable) often helps to avoid the commercial groups who tend to start later in the day for the benefit of their clients.

Group Sizes

The ideal canyoning group size is 3-5. In case of injury or accident, having at least 4 people in a group allows two to go back for help and one to stay behind with the injured person.

Groups larger than 5 can lead to lengthy delays due to the extra time required for setting up for the abseils. Claustral canyon is a classic example of this, where having more than 3 people may require extra sets of ropes to allow "leap froging" of the abseils to get everyone down faster. Everyone should have their own abseiling gear as sharing equipment can really slow things down, especially on multiple abseil trips, and it will often be frowned upon if a group has to wait behind you while you haul gear back up the abseil.

Obviously the more people in the group the greater the damage to the delicate canyon environment as well. When in large groups, keep within the creek line to minimise impacts, and follow existing trails to avoid making new tracks.

NPWS also have guidelines for maximum canyoning group sizes.

You should never go canyoning alone, anything can happen even to the most experienced canyoner, and there will be no one to help you. Minimum recommended party size is two experienced people.

Guide Books

There are only two guidebooks to Blue Mountains canyons generally available.

The most popular is Rick Jamieson's Canyons Near Sydney (ISBN 0-646-41076-8) now in it's 4th edition (2001). This is effectively the "bible" of canyoning in the Sydney region and almost everyone involved in canyoning has a copy of this book. It is available from all good outdoor shops around Sydney. It lists over 100 canyons in and around Sydney and gives then a rating of difficulty from 1 to 6.

There is also David Noble's Blue Mountains Canyons guide from Wild Magazine. This is much smaller and less detailed than Jameison.

Care must be taken with guidebooks, they have been known to have errors and the rating system can be a matter of personal opinion and/or experience. They should only be used as their name implies, a "guide", and should not be relied upon as the sole source of information for navigation, equipment selection etc. The descriptions are sometimes deliberately brief.

There are many personal web pages around that have trip notes and other information, and this is well worth searching for before doing a new canyon.

Canyoning Equipment

Your life depends on the safety of your equipment. Only proper approved canyoning/mountaineering grade equipment should be used for the devices which your life will depend upon. This includes but is not limited to ropes, harnesses, tape, carabiners, descenders, bolt plates etc. Buying quality equipment from a reputable outdoor/adventure type store with sales people experienced in canyoning/mountaineering is a must, they are not at all difficult to find. Quality brands include Petzl, Faders, Edelrid, Black Diamond and there are many others. There are also local Australian companies like PFH and SRT which make some excellent gear. Good outdoor shops like Eastwood Camping, Alpsport, Snow Gum, Paddy Pallin and Kathmandu will carry all the major brands.

Ropes

A rope will be your most expensive and vital piece of canyoning equipment, make sure you don’t try and cut corners here.

Canyoning is usually done on either 9mm or 11mm static rope. Less than 9mm is not recommended. Dynamic rope is also suitable, but be careful it does not stretch so much that when you get off the rope it recoils back up to where you can't reach it. Unlike rock climbing, in canyoning there should rarely if ever be a need for a rope or other equipment to sustain a "fall", as typically only abseiling is required in a canyon. Canyons that require rock climbing have a different set of requirements.

9mm rope is very popular due to it's lighter weight and smaller size.

Common ropes lengths are 30m, 40m, 50m (the traditional length) and 60m, but they are generally cut to size from a reel. It can often be more versatile to carry say two 30m ropes than one 60m rope, as the load can be shared among packs, and you have the advantage of using a shorter rope for the shorter drops. Ropes are typically joined with a double-fishermans knot.

Many canyoners make it a rule to carry a complete set of extra ropes, and this is highly recommended, especially if the canyon has many drops where you might have to abandon a rope in an emergency.

A hand line will also come in handy for short "hand-over-hand" drops or very small abseils. A typical hand line might be 10-15m of 8mm rope.

"Dry treated" ropes are useful in a canyon environment as they absorb less water and will weigh less for the walk out. The dry treatment wears off after some time though.

Polypropylene core ropes which float can be handy in a canyon environment. Their reduced heat resistance is not really a factor in a wet canyon environment. They do however generally have a reduced breaking strain compared to normal ropes.

Because rope work in a canyon almost always involves doubling the rope over (to allow it to be retrieved from below), it is very useful to have a center marker on the rope. Only a special rope marker pen should be used, other normal marker pens may degrade the strength of the rope (right at it’s most critical point!). "bicolor" ropes are also available which have one half of the rope a different colour to the other half, this gives a center marker as well as an indication of which end of the rope to pull when retrieving the rope. Bi-colour ropes only come in fixed pre-packaged lengths.

Remember that, for instance, a 50m rope is only suitable for a 25m abseil as the rope is doubled over. Also, a 50m rope usually won’t make an exact 50m abseil, as the rope is usually anchored some distance back from the edge.

Some popular canyoning rope brands are BlueWater, Rivory, Edelrid, Roca, and Beal.

Rope stiffness, weight, strength, texture etc varies greatly with brands and models. Choose one that feels right for you.

A canyoning rope contains an inner core and one or more outer sheaths. The inner core takes most of the stress, and if damage occurs to the inner core the rope should be cut up and used for other purposes. It is normal for the outer sheath to get a "fuzzy" look to it through use, but

any major nicks or cuts on the outer sheath is a sign of danger, and the rope should probably be retired.

Dirt, sand and grime on a rope can act as an abrasive when you abseil on it, so it's important to keep your rope clean. Ropes can be "chained" and then washed in a washing machine with pure soap such as "Lux". Abseiling through a water fall with your weight on the rope stretching it will clean your rope thoroughly.

Ropes should be inspected before each trip to ensure safety, and should be stored in cool dry conditions away from heat and sunlight.

There is no set expiry date for ropes, some people have been known to keep them for well over 10 years with good care.

Descenders

A descender is a device you use to descend (abseil) the rope. It is what connects your harness to the rope and controls your descent speed. There are a few major types of descenders:

- Figure 8's & other belay type devices (eg. stitch plate)
- Rack type device or "WhaleTail"
- Piton bar or "PittStop"
- Automatic mechanical devices

Inline descenders such as the "rack" or "PittStop"/"piton bar" are probably the most popular device for canyoning. They allow easy clipping onto and off the rope at any point on the descent without having to unclip the device from your harness, this can come in very handy.

Piton Bar:

Photo: A piton bar which goes across a carabiner

A piton bar is a steel "bar" with a hole in one end that fits across a standard carabiner. One of more piton bars can be used on a carabiner to control descent speed.

PittStop:

The PittStop (which is basically a chunky aluminium piton bar with a tie-off point) is a popular device for short drop canyons (30-40m or less). The PittStop however provides little ability to adjust the friction, which can be done by using different size carabiners. It is recommended to use a steel carabiner in conjunction with the PittStop or Piton bar to provide additional strength, as the carabiner is being cross loaded across the gate when using these devices. Cross loading on a carabiner gate is the weakest point of the carabiner, so as much strength as possible is required here. Locking gate carabiners are recommended for extra protection. However, many people use aluminium carabiners for the piton bar or PittStop to reduce weight.

Photo: The PittStop on a steel carabiner correctly threaded with a double rope. The second carabiner goes into your harness. Note the blue “tie-off” bar.

Rack:

Racks are a popular all round device as they allow you to adjust the friction to suit the environment. The more "bars" a rack has the greater the adjustment range. Racks are available in tubular stainless steel (the "RapRack") or solid aluminium (the Petzel variety). "WhaleTails" are similar to racks but are manufactured as one solid block and dissipate more heat. Heat dissipation is not usually a major factor in a wet canyon environment though. WhaleTails are not as easy to clip the rope into and out of as the Rack, as they use screw gate type locking plates.

Photo: A "GoldTail" from SRTE, and a stainless steel 3 bar "RapRak" from PFH

Figure 8 & Belay Type:

Photo: A standard Figure 8 correctly threaded, and the Petzl "Pirana"

Belay devices such as the Figure 8 or Stitch Plate are generally not the first choice for canyoning as you must unclip the device to get off the rope. This means the device can get dropped in the bottom of a pool, or is difficult to get off in an emergency or while treading water. A stitch plate (and to a lesser extent a figure 8) can also twist the rope, this can be a real pain and is not good for your rope. A figure 8 can have the problem where you can get caught up in a "larks foot", which is difficult to get out of. There are several alternatives such as the Petzel "Pirana" which solve the "larks foot" and twisting problems, but you still have to unclip. Figure 8's however are still relatively popular as they are the traditional descending device. Some people note that Figure 8's provide a "smother" descent and are easier for beginners to use. Belay type devices have the advantage of providing easy belaying from the bottom of the abseil (by pulling on the rope), inline devices are not as good in this respect.

Automatic mechanical descenders are generally overkill and are rarely used in canyoning.

Many people generally favor the descender that they are taught with as they feel comfortable with it, this is fine.

Generally speaking, you are better off having less friction on the descender and braking with your hand than having too much friction. Less friction allows you to descend faster if you are in trouble. The last thing you want when abseiling down through a waterfall is to get stuck, and anything that helps prevent this is generally a good idea. Beware though, that on large abseils (>30m) the weight of the rope can mean that there is more friction at the top of the abseil than at the bottom. So if you set your friction for too little at the top then you will be flying by the time you reach the bottom!

Tie-off points on the descender can be useful, as they allow you to tie off easily in the middle of the rope to fix problems such as a stuck or tangled rope.

Harness

Photo: L) A standard padded rock climbing harness. R) A top of the line Petzl Canyoning harness with rear protection.

A canyoning harness can be as simple as a length of seat belt webbing with a carabiner to a full on padded mountaineering waist and chest harness. It comes down to personal preference, most types of "home made" or commercial rock climbing harnesses are suitable for canyoning.

A few meters of "seat belt" type webbing and a carabiner can be used to make up a harness, and this is often useful as an emergency spare, or when you bring an extra person along who does not have their own gear. You can also buy simple tape harnesses pre-made at outdoor shops, these are the cheapest type of harness available. Tape harnesses are more than adequate for most canyons.

The next type of harness is your basic rock climbing harness, which come in either padded or unpadded types. These are a bit more versatile (they have gear loops etc) and are generally more comfortable than a simple tape harness. Padded harnesses are often more comfortable than the unpadded variety, although if you use a wetsuit then you will have some padding already. Padding will tend to soak up water and can take a long time to dry out. Gear loops are handy for carrying spare carabiners, safety lines and prusik loops etc.

The top of the line harnesses are your professional rock climbing and dedicated canyoning variety. Some canyoning harnesses even have built in nylon or vinyl type "shorts" to protect your wetsuit.

Testing of the harness for comfort and fit before purchasing can be very important, and some specialty outdoor shops will hang you in the harness on a rope from the roof to allow you to try them out. Take advantage of this.

Whistle

Whistles are very cheap and it is recommended that they be carried by every member of the party. It is often difficult to communicate in a canyon environment, especially on abseils with the constant thunder of water all around. The best type of whistle to get is the mountaineering type whistle that has no moving parts, they are not as loud as the more common "ball" variety, but they are reliable and will always work.

Ascenders

Photo: A prusik loop neatly tied up ready to hang on a harness

Ascenders are devices used to climb back up (ascend or prusik) a rope. Ideally, everyone should know how to prusik, or at least the basic methodology. The leader should be proficient in prusiking.
Prusiking is required if someone gets stuck and must be rescued, the rope gets stuck when pulling it down, or someone must self rescue themselves. The entire party may also be required to reverse an abseil if a decision is made to abort the trip for some reason.

Ascenders can be as simple as two loops of rope called "prusik loops", or complex mechanical ascenders with padded handles.

Prusik loops are very popular because they are cheap, simple, and have a double use as safety lines. A set of prusik loops generally consists of a 2m loop of rope for the leg and 1m loop for the harness, the loops are joined with a double fishermans knot. The rope should be a smaller diameter than the abseil rope to allow it to "grip", 6mm static rope is a popular size. Prusik loops are "attached" to the abseil rope with a "prusik knot"

The "TibLock" is another popular device which "bites" into the outer sheath of the rope in combination with a carabiner. These are cheaper than full mechanical ascenders.

Mechanical ascenders come in a variety of shapes and sizes and often have molded handles for comfort. Some people insist on having them, and they can often provide faster and simpler prusiking, which may be important in a rescue situation.

Torches

Photo: 1) A typical bulb headlamp. 2) A low cost Jaycar LED diving headlamp

Torches should be carried on all trips, even short day trips. You never know when you will be delayed and have to hike out i n the dark. Also, canyons which are bright on one trip may plunge into near darkness on another trip due to cloud cover and/or a different time of day or season.

"Headlamp" type torches are popular and even necessary in some cases to keep your hands free.

Needless to say, torches should be waterproof or at least water resistant if they will be used in a wet canyon environment. A normal torch is fine for hiking in or out in the dark, just keep it in your dry bag while in the canyon. The "rubber" variety torches provide good impact/drop protection.

LED torches are becoming increasingly popular due to their longer battery life and reliability, they are often not as bright as bulb torches though. LED torches will usually only have a short beam suitable for about 10m.

As a rough guide, Halogen globes are brighter than standard Krypton globes, which in turn are brighter than LED's

Power consumption will vary with the type of globe and battery used. Every member of the party should have enough battery capacity to last at least all night (say 12 hours), even if it is a short easy canyon.

Petzel brand torches are considered pretty much top of the line. Jaycar Electronics also have a range of suitable low cost LED torches. Coles/BigW/Woolworths have very cheap Duracell/Energiser brand rugged rubber waterproof toches which are ideally suited. Two AA "Maglight" type torches can be taped to a helmet as a low cost substitute for a headlamp.

Chemical "glow sticks" are often used for night canyoning trips as they are rugged and long lasting. They can be hung from the harness and make an excellent backup for the torch.

Packs

Photo: The “Claustral” canyoning pack from SummitGear

Your pack will get a lot of abuse when canyoning. They are dragged along the ground and over rocks, thrown into pools from great heights, are constantly immersed in water, and often bulge at the seams with heavy gear, and that's just a simple canyon!

Some people get excellent use out of cheap Chinese made bushwalking/hiking packs, while others insist on name brand super rugged canyoning packs with all the bells and whistles. The choice is up to you.

A good quality pack, especially ones designed specifically for canyoning will almost certainly last you a lot longer than a cheap pack. Although you must remember that every pack will get abused.

Top opening packs (the hiking kind with a "flap" type lid) can be more convenient than the "daypack" type zipper packs, as it makes gear easier and quicker to access. Zippers should be of the heavy duty variety as they will take a lot of abuse.

Proper canyoning packs are typically heavy duty canvas or vinyl with draw cords instead of zippers, and have drainage holes for water. They are very simplistic in design compared to hiking type packs, and have few if any external pockets. This makes them less likely to snag on branches and other objects. For the most part, you do not need to access much in your pack whilst in the canyon itself, so having a dozen outer pockets may not be of much benefit.

Extra covers or pockets for things like your helmet, li-lo and handline can come in handy, and quickly accessible drink pockets can be handy. Make sure that any drink pocket holds the drink bottle securely, as many a drink bottle has been "lost somewhere" in the canyon!

What size pack do you need? If you will be carrying ropes and other equipment then a 45L pack would be about the minimum for a typical day canyoning trip. Other people like to take everything but the kitchen sink, in which case a big 60L-70L hiking pack are often used. Everyone will have different requirements, but the old saying that "equipment expands to fill the space available" holds true. Some people like to travel as light as possible and carry things like the rope around their shoulder.

Packs are not waterproof and generally you should not attempt to make them waterproof, that is the role of the "dry-bag". Water will always get into your pack, so unless you want to lug around an extra 20kg of canyon water in your pack, you'd better ensure that the water can drain out easily and quickly. If your pack is filled with water it can often make climbing out of pools and standing up very difficult. You can make reinforced drainage holes with "hole maker" kits available from outdoor shops. Putting a few drainage holes on the bottom of your pack can make the world of difference.

Dry Bags

Dry bags are a necessary part of canyoning, they keep all your vital gear (clothes, camera, maps, matches, lunch, phone, wallet, GPS etc) dry.

As mentioned in the pack section, your pack is not designed to be waterproof, so you need some form of dry bag that goes inside your pack to keep vital items dry.

The one thing to remember with dry bags is that all but the top of the line o-ring sealed containers are NOT waterproof (designed for continuous water immersion under pressure), they are only water resistant and designed to survive the occasional "dunking".

Dry bags also provide floatation in your backpack which helps keep you buoyant in the water, this is an important aspect.

There are several common types of "dry bags" used in canyoning:

Garbage Bags:

Garbage bags are commonly used as a cheap and simple dry bag. One garbage bag is not enough, you will need at least 2 or 3 garbage bags tie d off separately one inside the other. This is because it is very easy for the garbage bags to get punctured by things inside your pack, and general rough handling encountered in canyoning. The bags are tied with a loose knot so you can undo and re-tie them easily. The thick "Tuff-Stuff" brand garbage bags are the bag of choice, do not use the cheaper thinner variety. Garbage bags have several advantages - they are cheap, readily available, weigh nothing, mold to the shape of your pack, can double as rain coats by cutting holes for the arms and legs, and can be used to separate wet gear from dry gear on the walk out. Disadvantages are - they are not all that reliable and are easily punctured, they are disposable (bad for the environment), you can't see your gear from the outside, and they are inconvenient to undo in the middle of a canyon. If you plan on doing a lot of canyoning, investment in a proper dry bag is recommended.

Fabric type Dry Sacks:

These are your lowest cost "dry bag" available. They are made of a cloth type material with a "folding flap" seal, and have water resistant stitching. They have similar advantages to garbage bags in that they mold to the shape of your pack and are very light weight. But they have the advantages of being more puncture proof (but can still be punctured with sharp objects), and are easier and quicker to open and seal. They come in a variety of sizes and colors.

Canvas type Dry Bags:

Photo: A heavy duty see through Sealline canvas dry bag

The canvas type bags are pretty much your top of the line dry bag. They have the same "folding flap" seal as the fabric type but they are made of thick canvas type material with welded seams, they are next to impossible to puncture under normal circumstances. Some even have double thickness bottoms to

make them "bomb proof" (for water impacts etc). You can even get them with backpack type harnesses so you can do away with your backpack in many cases (but you must then carry your rope and other canyon equipment on the outside). The most useful kind are the clear see-through type, this allows you to see your gear clearly in the pack and if any water has got in. Disadvantages are that they are quite stiff and don't mold to the shape of your pack all that well, and they weigh more than the other types. Once again they come in all shapes and sizes.A canvas type dry bag will last you many years of canyoning.

For dry bags with the "folding flap" seal, it is most important to make sure that you fold the seal correctly. Any mistake here will mean your gear will get soaked. They come with instructions, make sure you follow them precisely.

Buoyancy/Flotation

Buoyancy/flotation is important when swimming through pools as it helps reduce the effort required to not only swim but to stay afloat. Some canyons have many pools many hundreds of meters long, and some form of floatation is essential to avoid wearing yourself out. Even the strongest swimmer can get tired very quickly in 10deg water with a heavy pack.

Things that provide buoyancy/floatation are:

Wetsuit - Wetsuit provide some degree of buoyancy, but not all that much, so they should not be used as the sole means of providing buoyancy.

Dry Bag - A dry bag in your back pack is often the sole means of buoyancy if you do not have a li-lo. It's amazing the difference even a small amount of air in a dry bag can make to swimming. It can reduce a hard swim to an easy back paddle, and it's easy to cover hundreds of meters without getting the least bit tired.

Wine Cask Bladder - An often used flotation device is the humble bladder from a wine or water cask. They weigh almost nothing, take up little space in your pack, and are easy to inflate. They can be blown up and put inside your pack, and they can make comfortable seats for a lunch stop.

Wetsuits

Wetsuits are recommended for use in all wet canyon environments, even in the summer time. For many people the advantages of a wetsuit far outweigh the small inconvenience of taking and wearing a wetsuit. However, many experienced canyoners have never used a wetsuit and are quite content to wear nylon shorts and a t-shirt. Water in a canyon, even in the summer time can be under 10degC, and it is not uncommon to be almost constantly immersed in this water for hours on end. Cold water can be extremely dangerous and it is safer to be overly caution in this respect. You can always take your wetsuit off or choose not to wear it when you get to the canyon, but if you don't bring one then you have no option.

Advantages of wetsuits are that you stay warmer for longer, thus conserving energy and it can help keep you alive longer in an emergency. Wetsuits also have the big advantages of giving you added buoyancy in the water and protection against bumps and scrapes which are inevitable in canyoning.

Disadvantages are your movement is more restricted and they take up weight and space in your pack, plus the time required to take them on and off.

Short length leg and arm "springsuits" are popular in summer, but the full length "steamers" provide better physical protection and more warmth.

Putting a pair of old shorts over your wetsuit can help protect it against abuse, especially when doing "slides", but abuse of your wetsuit is inevitable in canyoning. Wetsuits can be repaired with "Kwik Grip" or "Snow Seal" type glues suitable for neoprene rubber.

Beginners should most definitely use a wetsuit unless you have experience in long duration cold water environments. Everyone's tolerance to cold water is different, so the requirement for a wetsuit will be different for every person. It is best to err on the side of caution in this respect. Asthmatics are particularly vulnerable to cold water for instance. Cold water shock can be very dangerous also, this is minimised with a wetsuit.

Thermals are often worn under the wetsuit and can provide much needed warmth in colder environments, night canyoning for instance. It is not unheard of for people to wear 3 or more layers of thermals and a wetsuit, and still be cold!

3mm wetsuits are sufficient, although the thicker 5mm type obviously provide better protection.

A custom fitted wetsuit can be a big advantage in limiting water penetration. Many people opt for the "bib and braces" type wetsuit which has the advantage of having the extra jacket which can be removed if it gets too warm.

Proper canyoning wetsuits are available and typically have reinforced stitching and padding on the bum, knees, shin and elbows. These can be very handy.

Neptune Wetsuits are a Sydney manufacturer of canyoning wetsuits.

Footwear

Good footwear is essential for canyoning. As canyons are extremely slippery environments, you will need a shoe with a soft "sticky" rubber sole for maximum grip. Also, because canyons are predominately water environments, the shoe must be suitable for constant water immersion. Dunlop Volley's are by far the most popular canyoning shoe, almost to the point of being a status symbol for Australian canyoner s. They are extremely cheap, fairly durable, don't fall apart in water, and the sticky rubber sole is about the best you can get. They are however not designed for comfort, but this is very subjective. Some clubs even go as far as not allowing people to come canyoning unless they have Dunlop Volleys or an equivalent canyoning shoe.

There are many dedicated canyoning and "water sports" shoes available, they can be very good, but they can also be very expensive. "Diving booties" are also suitable and are popular.

Regular sports shoes and sneakers are not suitable for canyoning, they generally fall apart in water and most importantly don't have the required grippy sole. Hiking boots are also not suitable.

Many people opt to bring one set of shoes for the walk in and out, and another pair for use in the canyon. If you can afford the weight and space then this is a very worthwhile luxury.

A pair of fresh dry socks can make the walk out a lot more comfortable.

Sand is a big enemy of the canyoner, as it will often get into your shoes and right into your socks, making walking very uncomfortable. Schemes to keep sand out of your shoe range from holes cut in the end to special types of inner socks.

Helmets

Photo: The Edelrid Ultralight is a popular canyoning helmet. Note the large drainage holes and attachment hooks for a headlamp.

Helmets provide protection against not only falling objects (rocks, carabiners, rope etc), but impacts caused by slips (and you slip often in canyons!), or bumps on low or unseen objects etc.

Many people never use a helmet and never have a problem (yet), while others make it an absolute rule to use them on every trip. Needless to say, your head is the most valuable and vulnerable part of your body and is worth protecting. A good canyoning helmet weights little and is non-obtrusive.

Proper canyoning helmets have drainage holes to allow water to flow freely through it, this is very useful for water jumps where a helmet without drainage holes can put a lot of force on your chin strap.

There are two major types of helmet. The polycarbonate "hard-hat" variety are stronger and provide better protection against falling objects, but are heavier. The styrofoam bike type helmets can provide better side impact protection and are lighter, but they aren't as strong or impact resistant. Both are suitable for canyoning, it comes down to personal preference.

You won't be allowed on a commercial canyoning trip without a helmet, and many clubs insist on them also, they are usually provided.

Gloves

Gloves should be worn at all times when abseiling, and leather gloves are recomme nded. The leather “rigger” type gloves are cheap and effective. Not only do gloves protect against rope burns, but protect against bangs and scraps against rocks and walls etc which are often inevitable in a canyon environment. Your fingers are delicate and worth protecting.

Lilos, flippers

Li-Lo's (a trademark name) are inflatable air beds that are popular in canyoning. Many canyons such as the Wollangambie can be done as a Li-Lo trip.

There are many brands of Li-Lo's on the market, from the cheap an d simple plastic variety to the strong rubberised canvas types with inbuilt hand pump.

The stronger rubberised canvas type are recommended as they will last a lot longer, although they are much heavier and take up more pack space. Li-Lo's take a lot of abuse in a canyon and it is very common to get a puncture, almost inevitable in fact. Be prepared to patch it up or replace it after only one canyon trip.

The type with the built in hand pump are very convenient, as it means you do not have to inflate it with your breath when you are cold and tired, and they are a lot of work to inflate!

Some people use flippers if there are many long pools, this can make your trip quicker and easier. Large type flippers that can fit over your canyoning shoes are preferred.

Miscellaneous

Bolt Plates

Bolt plates are used to anchor to bolt heads that are installed into the rock. Most canyons will already have chains or bolt plates in place, but it's worth taking a few of these just in case. You'll need a carabiner to go through the plate, not only for the rope to go through (don't put the rope through the plate!) but to stop the plate detaching from the bolt head.

Food

Canyoning can be a very exhaustive sport and it is important to carry plenty of high energy food. Food in sealed ready to use packets (energy bars, lollies etc) are popular as they are waterproof and can be taken instantly. All food scraps should be taken back out of the canyon, even so called biodegradable food stuffs like apple cores, they do not belong in the canyon.

Canyoning Techniques

Navigation

Navigation can often be the most difficult part of canyoning, and even the most experienced groups can take the wrong track and waste a lot of precious daylight time.

A canyon (especially a new one) can more often than not take a lot longer than you expect, and it is not uncommon to get "benighted" and not make it out before night fall. In this case you have to either hike out in the dark (always take a torch just in case), or camp overnight in the canyon. Be prepared for this.

You should always take a 1:25000 topographical map of the area and a compass as a minimum, AND know how to use them. Even if you have done the canyon before, you never know when you may have to take an alternative route. A GPS can come in very handy and is highly recommended, but do NOT rely on the GPS as your sole navigational aid. The Garmin eTrex model is often favored for it's light weight and water proof design, although there are others just as suitable. Note though that GPS's do not generally work within the canyon itself as there is not enough sky to fix onto the minimum number of satellites.

The AUSLIG Mapreading guide is a good introduction to map navigation: http://www.auslig.gov.au/corpinfo/publications/products/

You should plan the canyon trip before hand on the topographical map so you know what to expect. The exit from the canyon is often the most difficult part, and it's easy to overshoot a canyon exit point. Ensure that you know what the exit is (often a gully), and where to expect it.

There are often many tracks exiting from a canyon, some of which lead to dead ends - beware.

Taking a few minutes to stop and verify your position on a topographical map can save hours of lost time, likewise for having a "mental map" of the complete canyon route planned out beforehand.

Most of the popular Blue Mountains canyons have tracks leading into and out of them. It is good practice to use these existing tracks if at all possible. Advantages of existing tacks are that it makes navigation much easier, it provides minimal impact on the environment, it's quicker, and it usually takes you to the best and most convenient abseil points.

When there is no track then it is common practice to spread out to avoid making a new track.

Creation of new markers and other cairns is generally frowned upon, but if they are there then leave them in place for other people who may rely on them.

The entry and exits to canyons can often be very confusing, with large open rock pagodas, side creeks, dense scrub and other obstacles which can be very confusing. Canyons often twist, turn and branch off in unusual ways. It is not uncommon to find yourself abseiling into the wrong side creek for instance. Be prepared for these eventualities. Topographical maps do not always match up with canyon features, beware.

Canyoning usually involves finding a creek and following it as far as you like, so as long as you are able to find the right creek it often doesn't matter at which point you hit the creek. Often there is no defined "entry point" to a canyon, so you just hit the creek at any convenient spot. Do be aware though that hitting the creek at the wrong spot may involve an unexpected abseil or two.

Night Canyoning

Canyoning at night is a popular past time with many canyoners as it adds a whole new dimention to the experience. Glow worms live in abundance in many popular canyons and they are only visible at night, the Grand Canyon is one example of this.

Canyoning at night can be potentially more difficult and dangerous than canyoning during the day. For starters, navigation is much more difficult, and there is no sun to warm you up so hypothermia is a bigger danger.

Every member of the party must have their own torch, spare batteries and globes. A headlamp is necessary for when you need your hands free during abseiling and scrambling etc.

Many people take a bigger and brighter hand torch for the walks in and out and a smaller headlamp for use in the actual canyon.

The chemical "glow sticks" are also popular.

Anchors

Photo: A tree anchor with a few too many slings

Your life depends on an anchor point, make sure you know how to select a safe anchor point.

As a rule of thumb, an anchor point should have a breaking point an order of magnitude (10x) greater than your maximum weight with a pack. If you are unsure then choose the one that looks the strongest, or set up a backup anchor point. It is better to leave behind a $15 carabiner and some tape, than risk your life on a dodgy looking bolt for instance.

Anchors (or "belay points") in a canyon usually involve a natural feature such as a tree trunk or "chockstone" (a large rock wedged in place). If the anchor point is far back from the edge, on a bad angle, or has too much friction that will impede the retrieval of a rope then the common practice is to use a tape sling around the anchor. A tape sling also minimises damage to the tree or rock. 19mm tape is the minimum size tape used, "selt belt webbing" is a popular alternative. A "tape knot" is used to make the tape into a sling.

It is not uncommon to find 5 or more slings around a single anchor point! An often quoted saying is "one brand new sling is better than 2 old ones."

If existing slings are there and they look safe then by all means use them, but feel free to cut them off and replace it with a new one and haul the old ones out of the canyon.

Natural anchors are usually preferred over artificial ones such as bolts which cause damage to the canyon environment. Unless you are the one who installed the bolt, there will always be a question as to it's integrity.

The rule is that if there is a bolt or chains in place and they are safe then use them. It is preferable to use a natural belay over a single bolt, as the strength of the bolt will always be in question. Many canyons have multiple bolts or chains, use them all if possible.

Should you trust an old tape sling? - If in any doubt then NO. Beware, tape can degrade with water and sunlight, and the tape may have less integrity than it appears. You should always carry your own tape and be prepared to leave some of it behind.

The top of an abseil can be dangerous and slippery, ensure that you "clip in" to the anchor with a safety line. Each person should carry their own safety line which usually comprises two carabiners joined with a piece of tape or rope. Prusik ropes can double up as safety lines.

Water Jumps

Photo: The first jump-in at Rocky Creek

Water jumps can be a fun and sometimes necessary part of canyoning. Water jumps are however potentially very dangerous, and caution should always be taken when jumping, no matter what the circumstances. There have been many injuries as a result of water jumps, however if done correctly water jumps can often be safer and quicker than abseiling a particular small drop. It is good practice to send someone down first

(abseil/scramble etc) to check the pool for obstacles before jumping. Checking the pool usually involves someone climbing in and swimming around to feel for obstacles. This should be done even if you have done the canyon/jump before, as logs, rocks, or other obstacles can and do easily fall into the pools and often cannot be seen.

Proper canyoning helmets have water flow holes that minimise the "pulling" felt on the chin strap when you hit the water. These are very useful if you are doing serious water jumping.

Water jumping can also be a sport in it's own right, and many people go out of their way to find ever bigger and more spectacular and fun water jumps.

The same cautions apply for rock slides.

Scrambling

Scrambling is a most important skill in canyoning as almost every canyon will involve anywhere from a few to a few hundred scrambles. The wet canon environment and in particular moss on the rocks makes most things extremely slippery, and caution should be taken when scrambling over obstacles. Good grippy shoes such as Dunlop Volleys are vital for scrambling.

The golden rule of scrambling (and really any part of canyoning) is that when in doubt go on your bum. It is safer to take your time and slide on your bum over obstacles like rocks than it is to risk trying to walk or scramble over them.

First Aid

First Aid is important in a canyon, and at least one of your party should have some form of first aid training or qualification, preferably remote area first aid.

The most common injuries in canyoning are sprained ankles, cuts and scratches, so your first aid kit should at least cover these basics. Each party should carry at least one fully stocked first aid kit. Assorted bandages, band-aid's, thermal blankets etc are all standard equipment.

Canyon water is usually quite clean and can be used to clean wounds.

Rescue

Canyons can be in very remote and rugged areas, this makes any form of rescue difficult and lengthy at best. Not only can it take a long time to get out of a canyon to raise the alarm, but it will also take rescuers a long time to get to you. Mobile phone reception is non existent in a canyon, and marginal or even nonexistent on the ridge tops. EPIRB's may also not work in a canyon.

Any canyoning party should be as self-sufficient as possible and be prepared for a long wait in potentially very cold conditions for any rescue. Many rescues may not even begin until first light the next morning. Rescues can also be hampered by bad weather conditions, and helicopter rescue is often not possible.

Flash Foods

Flash floods can and do occur in canyons, and they have been fatal on many occasions. A flash flood can be anything from a sudden "wall of water" to a slow rise in the water level over say minutes or hours. They are usually due to sudden rain fall, not only in the canyon itself but

in the surrounding water table. They can also occur due to natural dams breaking. Whatever the cause, even a small rise in water level in some canyons can lead to a dangerous torrent of water at an otherwise safe waterfall or other constriction.

Some canyons are more prone to flash flooding than others, with the narrow slot Blue Mountains canyons being the most susceptible. It is possible to estimate the water table from a topographical map, but this requires some skill.

A great danger is posed if the surrounding water table has been saturated by recent rain (usually in the last day or two), in which case even a little rain fall will wash straight into the canyon instead of being soaked into the ground. So it is advisable not to go canyoning the day after heavy rain, especially if rain is forecast. Never go canyoning before checking the forecast, if heavy rain or thunderstorms are forecast then it's advisable to cancel, the canyon will still be there next week.

If rain is imminent or you sense a sudden rise in water level the standard practice is to get to the highest ground as quickly as possible and wait it out, or exit the canyon if possible.

Swimming

Many canyons will involve long deep pools which you must swim through, and some pools can be up to hundreds of meters in length. There is often no place to stop and rest or grab hold of the side, so being able to make the swim unaided is vital. Cramps caused by the cold water and other factors are quite common, these can be dangerous in a long pool.

Swimming technique is important if you wish to conserve energy which can be sapped quickly by the cold water. One of the easiest methods is to use your backpack as floatation, lie on your back and paddle backwards. This also gives you a great view of the canyon surrounds and makes it much more enjoyable.

A backpack with too much buoyancy however can tend to tip you over, and it makes floating on your back difficult.

Taking your pack off and pushing it in front of you is not advisable for long pools, as you must expend energy not only staying afloat, but pushing the pack downstream. This is an inefficient technique and can tire you out very quickly. It's better to use your backpack to your advantage.

Many people take a li-lo for canyons which involve lots of long pools. This allows you to stay out of the cold water and also effortlessly float down the pool.

Throwing the Rope

Throwing the rope down the abseil can be an art in itself. Its often difficult to coil the rope up and throw it down and abseil without it tangling, especially when you often can't see where you are throwing it, the wind howling, and with very little room on the top of some abseils.

One technique is to coil up about 1/4 of the rope leaving a few meters of the end hanging so that it doesn't get tangled up with the coil, and then holding onto the middle of the rope (it's a double rope abseil remember) throw the coil down the abseil out as far as possible. The weight of the rope should bring the rest of the half rope down, and with the loose end at the bottom it should avoid tangling. Place the rope through or around the anchor and do the same for the other half.

The first person down should be one of the most experienced abseilers as they will often be required to stop and untangle the rope etc.

It's better to pull the rope back up and have another go if you didn't get it right than try and fix it half way down the abseil.

Retrieving the Rope

Retrieving the rope is another art.

In most cases when the rope is simply passed through the sling or around a tree, you simply pull on one end of the rope and the other end should come down without much problem. There are however many things that can interfere with this simple process and jam the rope. Some of the problems can be:

- The rope falling into grooves or notches in the rock edge, in which the force of pulling the rope wedges the rope in the gap. The harder you pull the better it gets stuck!
- Having two ropes joined with a knot at the top can cause problems when the knot is being pulled over the edge. The knot can also get snagged on obstacles on the way down. You can also pull on the wrong end of the rope.
- If you pull too quickly the rope can "whiplash" around and tangle itself.
- The free end falling down can get tangled on obstacles on the way down.
- Any twists in the rope can manifest into tangles when pulled.
- There simply being too much friction caused by a sharp angle at the edge. This is often the case when the abseil anchor is a distance back from the edge and low to the ground.

Most problems can be avoided by taking the following precautions:

- The last person down the abseil should ensure that any knot is over the edge if possible. They should also ensure that both ropes are untwisted as they come down, and that the rope is not near any potential snags at the top of the abseil.
- Knowing which end of the rope to pull. Many people mark one end of the rope, use different colour ropes (or bi-colour), or tie a knot (or two knots) in one end as marker.
- Ensuring that both ropes are untwisted and separated before pulling down. This can often be done from the bottom.
- Selecting an abseil anchor point with the least possible surrounding obstacles, and with a good angle. A 90degree angle over the edge is the worst possible situation.
- Selecting a higher anchor point to reduce the angle of the rope over the edge.

Stuck Ropes

If your rope does get stuck and no amount of pulling will free the rope then you have several options.

- Prusik back up the rope and free it. This is safe if you still have both ends of the rope, but is (obviously) potentially very unsafe if you only have one end available. In this case you will need other forms of protection.
- A competent rock climber may be able to climb up (using appropriate protection and techniques) and free the rope.
- You can abandon your rope and use your backup set of ropes. You did bring a backup set of ropes didn't you?
- If it's a popular canyon you may be able to wait a reasonable time for someone to come along and help you from the top.

Whatever you do, a stuck rope is one of the worst situations you can end up in while canyoning, it can waste valuable time and leave you without equipment. Do everything you can to avoid rope jams.

Belaying

Photo: Bottom belaying in Tigersnake canyon

Belaying in canyoning involves having someone else able to control or stop your descent in case of an accident. This can be done from the top (top belaying), from the bottom (bottom belaying), or by yourself (self belaying). Belaying is not mandatory for experienced abseilers, but as bottom belaying is so simple it is recommended.

Common "calls" are:

- **"on belay"** - When the belayer is ready to belay the abseiler, who can now proceed down.
- **"on rope"** - When the abseiler is on the rope. The abseiler should not continue until they hear "on belay" from the belayer.
- **"off rope"** - When the abseiler is down and off the rope, the next abseiler can clip in.

Bottom Belaying:

Bottom belaying is by far the simplest and most often used in canyoning. Bottom belaying is done by pulling on the abseil rope from someone at the bottom of the abseil, this can stop or slow down the descent of an abseiler in trouble. This is most effective with Figure 8 and other belay type descenders like a stitch plate. It is somewhat less effective with inline devices such as the Rack and PittStop/Piton. Bottom belaying takes no time or resources to set up and is thus recommended.

Top Belaying:

Top belaying is not normally used except by commercial companies and others with complete beginners. It involves the belayer at the top of the abseil "feeding" a separate rope through to the abseiler. This can help reassure beginners. It is not often possible for the belayer to see the abseiler, so this technique can be rather difficult to implement. It also requires extra time and equipment to set up a top belay.

Self belaying:

Self belaying involves the abseiler using a "prussik" type "self belay" knot tied into their harness and trailing on the abseil rope just above them. The abseiler moves the belay knot down the rope as they abseil, and if they let go then the belay knot catches and stops any fall. Self belay knots can be difficult to release when under load, and this can present some major problems those not experienced in this. It can also prove dangerous if you are abseiling through water falls, as the last thing you want is to become tied up under a cold and pounding water fall.

Self belaying is not often used by experienced abseilers, although many people insist on the first person down using it on difficult abseils.

Knots

The following knots are often used in canyoning, although many people have their own preferences.

- Tying two ropes together (for abseil or prusik loop) - Double Fishermans
- Making a tape into a sling - Tape Knot

- Tying off the end of the rope (so you don't abseil off the end) - Figure 8
- Tying a loop in the middle of a rope - Alpine Butterfly
- Belaying or as an emergency descender - Italian Hitch
- Prusik - Standard Prusik, French Prusik

Suggestions for beginners canyons

It is best to start canyoning by going with an experienced person or group, and this is how most people get their start. However there are people who do learn and practice canyoning on their own, there is quite a deal of information available on the Internet and other places to learn from.

The real learning comes though when you have to plan and lead your own trips, as navigation, equipment selection, anchor selection, time estimations, safety etc become your own responsibility. Many people who lead their own trips often start with a canyon they have done before as part of a group, this is a wise thing to do.

Some traditional Blue Mountains beginners canyons are:

Abseil trips:

- Valley of the Waters/Empress Falls (30m abseil, begins/ends on tourist track)
- Grand Canyon (20m abseil, begins/ends on tourist track, can be reversed so no abseil required)
- Dalpura (5m abseil, some navigation required)
- Fortress (8m abseil, some navigation required)

Non-Abseil trips:

- Rocky Creek & Twister canyons (often done as a double canyon trip) (some navigation required)
- Deep Pass (some navigation required)
- Wolgan View (some navigation required)
- River Caves (some navigation required)
- Wollangambie (long swims or li-lo, some navigation required)

The non-abseil canyons are a great introduction as you get a feel for the canyon environment, rock scrambling, swimming etc without having to either buy expensive gear or worry about setting up abseils.

The Grand Canyon and Empress Falls are very popular as they are easy to get to, and both the walk in and walk out are along fully marked and maintained tourist tracks, so it's next to impossible to get lost. This takes the worry of navigation out of the equation, and for many beginners this can be very comforting.

The advantages of starting off with the popular canyons are that you'll usually run into plenty of people who can help you out if you require it. Many are also willing to share some tips, techniques and experiences.

You should not learn abseiling in a canyon, it should be learnt in a controlled and safe environment first.

END OF FAQ.