Mountain climbing is an equipment intensive activity. Having good equipment in the mountains increases safety and your comfort level and therefore your chance of having a successful climb. Alpine Ascents does not sell equipment nor do we receive any outside incentive to recommend a particular brand name over another. Our recommendations are based on quality, experience and performance with your best interest in mind.

This lexicon represents years of in-field knowledge and experience by a multitude of guides, teachers and climbers. We have found that by being well-equipped on climbs and expeditions our climbers are able to succeed in conditions that force other teams back. No matter which trip you are considering you can trust the gear selection has been carefully thought out to every last detail.

People new to the sport often find gear purchasing a daunting chore. We recommend you examine our suggested brands closely to assist in your purchasing decisions and consider renting gear whenever possible. Begin preparing for your trip as far in advance as possible so that you may find sale items. As always we highly recommend consulting our staff of experts prior to making major equipment purchases.

**A Word on Layering**

One of the most frequently asked questions regarding outdoor equipment relates to clothing, specifically (and most importantly for safety and comfort), proper layering.

There are Four basic layers you will need on most of our trips, including our Mount Rainier programs. They are illustrated below:

- Underwear Layer
- Soft Shell Layer
- Shell Layer
- Insulated Layer

**FEATHERED FRIENDS**

Much of the gear contained in this Lexicon is available for purchase online through:
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Climbing Equipment

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**Accesory Cord**

Used primarily for making prussiks. Good quality cord has a “soft hand” i.e. bends easily and doesn't retain a shape. (Prussiks are friction knots used in such instances as self arrest and to ascend a rope).

Check your gearlist for required cord diameter. Determining the diameter for prussik cords is dependent on the diameter of climbing rope in which they attach. Greater size difference between the two provide greater holding power. If the difference is too great using the prussiks becomes too difficult e.g. prussik doesn't release as easy when unweighted.

**Suggested Brands:**
- Mammut: Accessory Cord
- Sterling: Accessory Cord

---

**Sewn Runner/Sling**

Slings are pieces of climbing-spec webbing sewn in a loop and they come in specific lengths. Webbing materials can range from nylon, spectra, dynema and dynex. They vary in weight and strength but all are appropriate for use in climbing. The benefit over tied webbing is lightweight and low bulk.

**Suggested Brands:**
- Mammut: Dyneema Contact Sling
- Blue Water: Titan/Spectra Runner
- Black Diamond: 10mm Dynex Runner

---

**Alpine Touring Skis**

Skis should be equipped with ski mountaineering bindings and climbing skins. The climbing skins should be long enough to reach from the top to the bottom of the ski.

Ski length is based on terrain and skiing ability. Bindings generally come in one size and are mounted according to your specific boot size. Climbing skins can either be purchased custom fit i.e. already trimmed to your specific ski shape and size. Or you can trim the skin width and length yourself to fit your skis.

**Suggested Brands:**
- Black Diamond: Voodoo
Ascender
This mechanical device is used to ascend fixed ropes. Right or left hand designation is not important for mountaineering since they can be used on either hand. The designation denotes what thumb operations the camming device for one handed operation. One handed operation is more important for aid-climbing where ascenders are used as a pair.

Ascenders are not sized to fit a specific hand size and most are designed to accommodate rope diameters of 8-13mm.

**Suggested Brands:**
- Petzl: Ascension
- Black Diamond: Nforce

Avalanche Transceiver
Transceivers are worn while traveling in potential avalanche terrain. Digital units (compared to analog) are easier to operate and have faster search results. Units should operate at the transceiver standard of 457mhz. More expensive units generally offer greater number of features e.g. visual locator map for multiple burials, victim heart rate monitoring and scalable software platform but are not necessary.

Transceiver harness straps should fit snug to the body. When adjusting straps be sure not to overstretch the elastic stretch strap as it can effect comfort and movement.

**Suggested Brands:**
- Backcountry Access: Tracker 2
- Mammut: Pulse Barryvox
- Ortovox: 3+

Belay Device
We recommend a simple tube style device used to assist in rappelling and belaying. Device should be double-slotted and fit rope sizes 8mm-11mm. V-style or high friction slots are beneficial as they help increase breaking power but are not required.

**Suggested Brands:**
- Mammut: Vader
- Mammut: Vader Light
- Black Diamond: ATC
Carabiner - “D”
Made of aluminum this non-locking carabiner that has a straight spine and curved front. Lightweight styles are preferred but carabiners with wire or bent gates are not recommended.

Suggested Brands:
Black Diamond: Light D
Black Diamond: Quicksilver 2
Omega Pacific: ISO Standard D
Mammut: Element Key Lock

Carabiner-Oval
Made of aluminum this non-locking carabiner has two straight side and rounded ends. Its is slightly heavier than a “D” carabiner since the load is centered on the curved part of the carabiner thus requiring a thicker diameter.

Suggested Brands:
Black Diamond: Oval
Omega Pacific: ISO Oval

Locking Carabiner - “Belay”
These are the largest type of locking carabiner and have a larger open gate clearance and inner diameter as compared to other carabiners. They are generally used in conjunction with your harness and other mechanical devices for roped travel, belaying or rappelling. Locking gate can be either screwgate or twist-lock gate.

Suggested Brands:
Black Diamond: RockLock Screwgate
Petzl: Attache HMS Screwgate
Omega Pacific: Jake HMS Screwgate
DMM: Sentinel Keylock Screwgate
Climbing Helmet

Must be specifically designed for mountaineering. Ski/snowboard or skate helmets are not satisfactory due to their weight and or venting ability. A climbing helmet should be highly vented, easily adjustable, able to accommodate different thickness of headwear, has headlamp attachments, durable and lightweight. Most popular style of climbing helmets have shells made of durable polycarbonate with a expanded polystyrene foam liner. The hard shell material improves durability while the foam reduces overall weight and provides excellent protection. Helmets with only all hard plastic shell or all foam are not recommended due either their weight or lack of durability.

Helmets easily adjust to varying head volumes. Check to make sure you can easily wear a warm hat or balaclava under your helmet.

Suggested Brands:
Mammut: Skywalker 2
Petzl: Elios
C.A.M.P: Armour

Crampons

General mountaineering crampon with flat frame rails (should have support underneath your boot) as opposed to “cookie cutter “ vertical ice climbing style crampons that have support on only the boot edges and are vertically structured.

Most crampons come with anti balling plates: and are helpful when . Snow build up occurs in certain conditions and reduces the crampons ability to provide traction. (The Anti-balling plate is designed to be a physical barrier that reduces snow build up).

Make sure the link bar (connects front and back sections of crampon) is long enough to accommodate your boot size. Attachment type: plastic flip lock heel bail/plastic toe strap is preferred over heel bail/toe bail.

Suggested Brands:
Grivel: G12 Newmatic
Petzl: Vasak Leverlock

Locking Carabiner - “D”

D shaped locking carabiners are lighter and smaller compared to Belay style carabiners. They are used for a wide variety of applications where you need a locking carabiner but don’t need the holding volume. The locking gate should be a screw type gate.

Suggested Brands:
Mammut: Locking D
Mad Rock: Ultra Tech Screwgate
Omega Pacific: ISO Locking Standard D
Ice Axe
Climbers should have an axe that is a general mountaineering tool, as opposed to an ice climbing ice axe. Primary use will be as a walking stick and for use in climbing skills such as self arrest. These tools should not have rubber bottoms. Axe should have a leash designed for general use. Technical ice climbing leashes are too short for your intended use.

Climbers height and climbing terrain dictate sizing. Taller climbers use longer axes and climbing in steeper terrain requires a shorter axe. Recommended sizing guidelines are: 5'5 and shorter use a 55cm axe; 5'6 to 5'9" use a 60cm axe; 5'9"-6'1 use a 65cm axe; over 6'1 use a 70cm axe.

**Suggested Brands:**
Grivel: G1+
Black Diamond: Raven
Black Diamond

--

Ice Axe - Technical Ice Tools
Designed for vertical ice climbing. Ice tools should have leash-less style handles, extreme shaft curve and a modular pick design. You should have one hammer and one adze.

**Suggested Brands:**
Black Diamond: Cobra
Grivel: Matrix Tech
Petzl: Quark

--

Ice Axe - Technical Alpine Tool
Designed for technical mountaineering routes. Axe should have a hammer and modular pick design. Shaft should not be extremely curved or have any attachments for leashless climbing. Leash can either be a traditional webbing leash or a more technical locking leash. A general mountaineering ice axe or technical ice tool is recommended as a replacement for this tool.

Depending on height your alpine tool should be around 50-60cm. General rule is steeper the terrain the shorter the axe.

**Suggested Brands:**
Grivel: Quantum Light
Black Diamond: Venom
Petzl: Aztarex
Chalkbag
Look for lightweight design with a drawstring closer. A small zippered pocket is a nice feature that allows you store a roll of cloth athletic tape or hand balm. Accessory items: Chalkbag Belt and Chalk Ball. Make sure your belt is long enough to easily refilled.

Bag opening should be large enough to accommodate your hand size. Smaller diameter make applying chalk more difficult especially when climbing a challenging route.

**Suggested Brands:**
- Arc’teryx: C40
- Metolius: Chalk Bag
- Black Diamond: Print Chalk Bag

Alpine Climbing Harness
Alpine style harness (lightweight/no padding/droppable seat) that can fit over all your clothing. (Used to attach climbers to climbing rope. Must have gear loops, adjustable leg loops and be reasonably comfortable when climber is hanging suspended. You should be able to get into your harness without having to step into the leg loops. Harness can have a belay loop but generally lightweight harness use a belay/rappel carabiner to connect the leg loops and hipbelt together.

Belt should have a comfortable yet snug fit around your waist. Please see manufacturers recommendation for remaining tail length after the strap has been threaded through its locking buckle.

**Suggested Brands:**
- Black Diamond: Alpine Bod or Couloir
- Petzl: Pandion
- Mammut: Alpine Light

Rock Climbing Harness
Rock climbing harness should have gear loops, tie in loop and padded leg loops. Leg loops are not required to have buckles as most rock climbing specific harness are designed with sewn leg loops with stretch Belt should have a comfortable yet snug fit around your waist. Make sure that leg loops are sized appropriately for you since they are not as adjustable.

Belt should have a comfortable yet snug fit around your waist. Make sure that leg loops are sized appropriately for you since they are not as adjustable.

**Suggested Brands:**
- Black Diamond: Momenturm AL
- Black Diamond: Chaos
- Mammut: Hermes
Webbing
9/16th tubular climbing-spec webbing.

Suggested Brands:
Blue Water: Climb-Spec Tubular
Mammut: Webbing
### Section 2

**Food & Cooking Items**

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Backpacking Stove
Liquid fuel (white gas) stoves efficiently operate in a wider range of temperatures and altitudes as compared to canister fuel types. It is impractical to bring the required number of canisters to achieve the same burn time of a liquid fuel stove for an extended multi-day trip. This is especially true when melting snow for drinking water. Stove should have a detachable fuel bottle so your stove can be broken down for storage. Accessories: Lighters and Service repair kit. Be sure to include regular lighters. Waterproof lighters are not required as regular lighters keep dry when stored inside your stoves stuff sack. Service kit should include extra o-rings, lubricant and disassembly tool. Due to increased flight security Alpine Ascents is able to provide white gas and fuel bottles for MSR stoves. Your stove should include fuel pump and storage stuff sack.

Many accidents have resulted in improper use of stoves. Please read the manufacturers directions thoroughly. Safety First!

Suggested Brands:
MSR: Whisperlite International
MSR: Whisperlite

Bowl
Plastic bowl with lid. Bowls with lids are preferred over open bowls or plastic folding “origami” style bowls since the lid keeps contents from spilling. Lids make clean up much easier since it only requires a shaking with hot water to remove food residue.

Check your gearlist for the appropriate sized bowl for your trip.

Suggested Brands:
Rubbermaid: Flex & Seal
Stanley: X-Large Mug/Bowl
GSI: Fairshare Mug

Cooking Pot with Pot Grips
Lightweight pot with tight fitting lid. Folding handles are an option but pot grips are favored as only one pot grip can be used on multiple items and are durable. Popular pot types are of made of anodized aluminum, stainless steel and titanium. Anodized aluminum conducts heat evenly, lighter than stainless and food does not stick. Anodized Aluminum can easily be dented and anodized coating can be scratched. Stainless steel is heavier and heating is uneven which can lead to scorching. Stainless doesn’t have a coating to be scratched and is extremely durable. Titanium is the lightest of the three and extremely durable, but costs more.

Suggested Brands:
Mountain Safety Research: Titan 2-Liter Pot
Mountain Safety Research: Alpine Classic Cookset
Mountain Safety Research: Duralite Classic Cookset
Cup

16oz. plastic mug with lid (retains heat well and is spill-resistant in the tent). Travel mugs are not recommended due to their weight and bulk.

**Suggested Brands:**
Various

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Food

Specific information about meal planning can be found in your trip confirmation package.

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Frying Pan

A anodized aluminum non-stick pan is great for adding variety to campground meals. Be sure to bring a spatula or larger serving spoon.

Pan doesn’t need to be any larger than 10 inches.

**Suggested Brands:**
- Banks Fry-Bake: Alpine
- Open Country: Fry Pan
Hydration Reservoir

Should be made of puncture resistant material with a waterproof wide mouth screw-on cap. Polyethylene reservoir doesn’t effect taste of water. Fill handles make it much easier to hold reservoir while filling. Hydration Reservoirs do not replace water bottles and hoses should have neoprene insulation to protect from minor freezing. Bite valve locks are recommended to prevent accidental spilling.

Not suitable for High Altitude climbs such as Denali due to freezing.

Suggested Brands:
- MSR: Cloudliner
- CamelBak: Omega

Knife

Should be a small locking blade knife that folds in for storage.

Suggested Brands:
- Spyderco: Byrd Robin 2
- Victorinox Swiss Army: Climber

Fuel Bottle

Metal bottle with a spill proof lid.

Suggested Brands:
- Mountain Safety Research: Fuel Bottle with CRP Cap
Spoon
Polycarbonate "Lexan" or polypropylene spoon. Lightweight titanium spoons work as well

*Suggested Brands:*
MSR: Folding Spoon
REI: Chefware Spoon
Snow Peak: Titanium Spork
Mountain Safety Research: Titan Tool Spoon

Sports Drink Mix
Powdered or tablet electrolyte drink mix.

*Suggested Brands:*
Nuun: Active Hydration Tablets
CamelBak: Elixir
Power Bar: Endurance Sport Drink Mix

Thermos
Insulated bottle should be lightweight stainless steel, leak proof with a large mouth.

*Suggested Brands:*
Primus: C & H Vacuum Bottle
Stanley Outdoor: Vacuum Bottle
Sigg: Thermos Vacuum Flask
Trail Snack Food Items
Bring your favorite energy bars, GU packets for summit day, drink mixes etc.

Water Bottle Parka
Insulated carrier should completely enclose water bottle and have hook and loop attachment for backpack. Zip opening lid allows easy access to bottle.

Suggested Brands:
Outdoor Research: Water Bottle Parka

Water Bottles
Bottles should have a wide mouth, leak proof lid and made of copolyester (BPA free plastic). Lid should have some type of keeper strap that connects to bottle. No water bag or bladder systems, they freeze or are hard to fill and no metal bottles as lips have a tendency to stick.

Suggested Brands:
Nalgene: Wide Mouth Loop-top
Hunnersdorf: Wide Mouth Bottle
## Section 3

### Footwear

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Backpacking Boots
Sturdy leather or leather fabric boots. Boots with waterproof insert (Gore-Tex liner) are acceptable. Your boots should be treated with a waterproofing treatment. Water based treatments are preferred over oil based since they do not affect the strength of leather. Allow yourself plenty of time to use your boots before your trip. So any fit issues can be addressed before your departure.

It is extremely important to have a professional fitting. A quality fitting can take up to an hour, in which the bootfitter will take all the necessary measurements, boot selection, fit checking and making any necessary alterations. A good fit will reduce the chance of blisters and lessen the “break in” time.

Suggested Brands:
Zamberlan: Civetta GTX
Vasque: Summit GTX
Asolo: TPS 520 GV

Booties
Can be made of either down or insulated synthetic material. Synthetic booties perform well in wet environments since fibers do not retain water and are warm even when wet. Synthetic fibers do breakdown over time so the life (time of maximum warmth) of boot does decrease with age. Down booties are extremely lightweight, low bulk and retain maximum warmth for the products entire life. But they do a poor job insulating when wet.

Suggested Brands:
Big Agnes: Mountain Booties
Sierra Designs: Packable Booties
Forty Below: Camp Booties
Mountain Equipment Co-Op: Hut Booties 2

Camp Boots
Warm waterproof boots that can be worn around camp. This is a non-technical type of boot designed for comfort and need not be used for any climbing or hiking. Weight and bulk are not as much a concern since they will be transported via climbing sled.

Due to their style camp boots generally come in whole sizes. So it is better to size them larger if you are between sizes. You should be able to wear warm socks without any pinching or tight spots.

Suggested Brands:
The North Face: McMurdo Boot
Salomon: Tundra Mid WP
Gaiters

Used to keep snow and debris from entering your boots. Gaiters should be designed for mountaineering. This implies that it has been made (sized) to fit mountaineering boots, constructed of abrasion resistant water/proof fabrics and has a durable replaceable urethane stirrup. For optimal gaiter performance please follow these recommended steps. First, determine left and right gaiter (stirrup buckle should be located on outside of boot) then attach lace hook to boot lacing. Second, close gaiter front by wrapping gaiter around leg and boot and firmly attaching hook and loop closure. If closure has gaps or does not fully overlap readjust lace hook further up boot lacing and try closing again. Finally, run stirrup under foot and pull tightly until tight seal is created between gaiter and boot and lock off strap in buckle.

When determining gaiter size make note that mountaineering or expedition gaiters are generally oversized to fit mountaineering boots. You should be able to completely close your gaiter around your boot and should not be too tight around your calves.

Suggested Brands:
Mountain Hardwear: Pinnacle Stretch XT Gaiter
OR: Expedition Crocodiles
Black Diamond: GTX FrontPoint

Gaiters: Hiking

Hiking gaiters are used to keep dirt and debris from entering your boots. They should be made of a lightweight but durable coated nylon. Waterproof breathable fabric is not required since moisture protection is not as important while traveling on dirt trails. Ankle gaiters (short version) are not recommended as they do not provide enough coverage.

The gaiters should have a snug fit around the boot but allow enough room for your calves and pants.

Suggested Brands:
Mountain Hardwear: Nut Shell High
Outdoor Research: Crocodiles
Outdoor Research: Cascadia

Insulated Overboots

Overboots are used in conjunction with a plastic or non-plastic high altitude double mountaineering boot. They are not required if using “Single Boot Systems” i.e. high altitude boots with integrated gaiter with removable high altitude liners. Overboots are designed to wrap insulation entirely around the boot (like a sock around your boot). Metal toe bail crampons can be challenging to attach and often require “working” the material to achieve a proper fit. Most popular material for overboots is neoprene with a durable face fabric since it is less bulky and easier to put on.

We recommend contacting the seller due to compatibility issues. Please provide them with your boot size, make and model along with the make, model and style of attachment system of your crampon. This information will help them match the best size overboot for your particular system.

Suggested Brands:
Forty Below: Purple Haze
Light Hiking Boots

Boot upper can be either leather or leather/fabric and should be waterproof. Either a waterproof insert or exterior treatment is acceptable. Sole should be flexible but still provide enough support for your feet.

When being fitted be sure to wear the socks you plan on using for your climb. Gore-Tex recommended.

**Suggested Brands:**
- Asolo: Flame GTX
- Scarpa: Mustang GTX
- Lowa: Renegade GTX
- Vasque: Breeze LT Mid GTX

Liner Socks

Are designed to be worn next to skin with a heavier pair of socks overtop. The lightweight synthetic material moves moisture away from your foot and helps reduce blisters.

**Suggested Brands:**
- Wigwam: Gobi Liner
- Fox River: X-Static Liner
- REI: CoolMax Liner

Mountaineering Boots:

**Double Boot**

Double plastic climbing boots (recommended and well tested) or Non-plastic (Synthetic) double climbing boots. Good quality climbing boot with a removable inner boot. The benefit of a double boot is ease of moisture regulation when spending extended periods of time on snow. Rigid sole provides a supportive platform that reduces foot strain when traveling on uneven terrain. Boot weight should be relatively light. (Synthetic boots are lighter and more often comfortable but are relatively new and not as time tested. Preferable for climbers with strong self management skills).

It is extremely important to have a trained professional fit your boots. Double boots are easier to fit than other types but a improperly fitted boot can negatively impact your trip.

**Suggested Brands:**
- Asolo: Afs Evoluzione - (Plastic)
- Scarpa: Omega (Plastic)
- Lowa: Civetta (Plastic)
- Boreal: G1 Lite (Synthetic)
- Koflach: Degre (Available Spring 2011)
Mountaineering Boots: High Altitude All-In-One
This “triple” boot or also called a “Single Boot System” style is the warmest mountaineering boot on the market. It is constructed of warmer material and has an integrated gaiter as compared to a traditional high altitude double boot. These features make an overboot and separate pair of gaiters unnecessary. There are many good quality boots on the market but the most important aspect when selecting is fit. These boots are generally used on High Altitude trips such as Denali and are required on trips like Everest, Vinson, and Cho-Oyu.

Suggested Brands:
La Sportiva: Olympus Mons
Millet: Everest
Boreal: G1 Expedition
Scarpa: Phantom 8000

Mountaineering Boots: High Altitude Double Boot
Plastic or Non-Plastic double boot. Good quality climbing boot with a high altitude removable inner boot. The difference between a regular double boot and a high altitude double boot is generally the type of liner used. Often times you can convert your non-high altitude model double boot shells with an aftermarket high altitude liner. Please consult your local climbing shop for available options.

It is extremely important to have a trained professional fit your boots as a poor fit can not only cause pain but also safety issues.

Suggested Brands:
La Sportiva: Spantik
Lowa: Civetta GTX Extreme
Asolo: AFS 8000
Koflach: Arctis Exp (Available Spring 2011)

Mountaineering Boots: Leather Single Boot
Suited for climbs with long approaches or long routes climbing alpine rock in warm/dry conditions. Boot should have a roughed out split leather upper of 2.5 to 3.5mm thickness that has been factory treated such as impregnated silicone. Besides leather treatment boot should have an integrated waterproof/breathable liner. Boot shank should be very rigid which will provide support.

It is extremely important to have a trained professional fit your boots as a poor fit can not only cause pain but also safety issues.

Suggested Brands:
La Sportiva: Nepal Evo
Boreal: Pamir
Running or Tennis Shoes

Comfortable pair of support shoes designed with aggressive sole for traction.

**Suggested Brands:**
- Montrail: Hardrock
- Gartmont: Nagevi Cross-Training
- Lowa: Jannu Lo Cross-Training

Socks: Heavyweight Wool/Synthetic

High quality Merino wool or synthetic mountaineering socks. Newer socks provide better cushioning and support. Make sure that fit is snug but comfortable.

**Suggested Brands:**
- Wigwam: Comfort Hiker
- Patagonia: Ultra Heavyweight Mountaineering
- Smartwool: Mountaineer Socks

Snowshoes

Should be designed for travel in backcountry terrain. Preferred snowshoe should be constructed of a rigid plastic composite decking with traction bars, aggressive crampon on a rotating binding and adjustable straps. Retractable heel bail reduces calf fatigue when traveling for extended periods in steep terrain.

Sizing is based on total body weight including pack weight. Take into consideration that weight based sizing is assuming travel on unpacked terrain. A shorter snowshoe is going to be easier to use and pack. Some snowshoes may require additional float tails to meet weight requirements.

**Suggested Brands:**
- Mountain Safety Research: Evo Ascent
- Atlas: 12 Series
Socks: Midweight Wool/Synthetic
Socks can either be made of Merino wool or synthetic fibers. Socks should be snug and supportive without being restrictive. New socks do a better job at preventing blisters and keeping your feet warm. Merino wool is softer than rag wool and provides adequate moisture transport.

**Suggested Brands:**
- Wigwam: Hiking/Outdoor Pro
- Smartwool: Hiking Medium Crew
- Patagonia: Midweight Hiking Crew

Sports Sandals or Water Shoes
Used for crossing streams. Should be supportive and provide good traction.

**Suggested Brands:**
- Chaco: Z/2
- Keen: Arroyo Sandals
- Crocs: Cayman Sandal

Supergaiters
Insulated gaiters provide a higher degree of insulation compared to regular mountaineering gaiters. Boot sole remains exposed so not as warm as overboots. The advantage of a supergaiter is on drier terrain. They are generally used on climbs like Aconcagua where the sole of the boot is frequently on rocky terrain. For snow/ice climbs you would generally use an overboot.

**Suggested Brands:**
- Mountain Tools: Insulated Supergaiters
- Climb High: Glacier Super Gaiter
- Wildline: Insulated Gaiter
Trekking Shoes

Shoes should be lightweight and comfortable. Shoes are sometimes referred to as trail running or cross-training. If you have any ankle issues or need more support look for a shoe that has a higher cuff. Higher cuff shoes are sometimes referred to as light hikers but are made of softer materials.

**Suggested Brands:**
- Lowa: Tempest Lo
- Garmont: Eclipse 3 XCR
- Vasque: Mantra
- The North Face: Hedgehog GTX XCR
# Section 4

**Handwear**

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Expedition Gloves
Designed for technical climbing in the coldest of environments. Glove should have waterproof/breathable shell and insulated synthetic removable liner (shell and liner are sold together). Look for a shell with precurved fingers, cinch strap at wrist, cinch cord at gauntlet and idiot cord. Liner should be made of pile fleece or synthetic material and have hook/loop attachment points to secure to interior of shell. Some liners use pile on palm side and synthetic fabric on back this is also acceptable.

You should be able to wear a lightweight liner glove inside your expedition glove.

**Suggested Brands:**
Outdoor Research: Alti gloves

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Expedition Mitts
Designed for high altitude expedition mountaineering. Mitts should have waterproof/breathable shell and insulated synthetic removable liner. Look for a mitt with a cinch strap at wrist, cinch cord at gauntlet and idiot cord. Insulating liner should be made with either fleece, down or synthetic insulating fabric. Some models have a combination of lofty synthetic fiber on the back of the liner and fleece for the palm side. The benefit is better feel of the ice axe with the fleece.

Should be large enough to accommodate wearing a light weight synthetic liner glove. Generally no other hand wear besides the liner glove is worn inside the mitts.

**Suggested Brands:**
Black Diamond: Absolute Mitt
Marmot: Expedition Mitt
Outdoor Research: Alti Mitt

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Hand Warmers
Disposable one time use chemical warmers.

**Suggested Brands:**
Little Hotties: Hand Warmer
Grabber Heater: Hand Warmer
Ice Climbing Gloves

Gloves should be light weight and form fitting. Light protection such as padding or plastic reinforced knuckles can be helpful to reduce chance of hand injury.

Fit should be exact with out any unnecessary room for hand to slip inside glove.

**Suggested Brands:**
- Outdoor Research: Motive
- Marmot: Amphibian
- Black Diamond: Arc

Lightweight Liner Gloves

Worn next to skin during warm weather to provide hand protection or worn in conjunction with other handwear layers for additional warmth. Liner should be lightweight, thin and moisture wicking.

Fit should be snug but not tight.

**Suggested Brands:**
- Outdoor Research: Base Gloves
- Black Diamond: Lightweight Glove
- Manzella: Sprint Glove Liners

Shell “Ski” Gloves

Worn alone or with lightweight synthetic liner. Shell gloves provide better weather protection and warmth than Soft Shell gloves. Glove should have a waterproof/breathable shell material and a insulation liner that can be removed. A good quality “ski glove” which doesn’t have a removable liner can be used but extra care must be taken to manage moisture. Since the liner can not be removed it is extremely difficult to dry the glove once it has become saturated.

You should be able to fit a lightweight synthetic liner glove inside Shell gloves.

**Suggested Brands:**
- Black Diamond: Tour Glove
- Mountain Hardwear: Medusa Glove
- Outdoor Research: Arete Gloves
**Soft Shell Gloves**

This glove is usually worn alone and during times when the shell mitts would be too warm and the synthetic liner glove is not warm enough. This glove can have a light shell exterior. Soft shell material does a better job shedding rain and snow does not collect like fleece. Waterproof and breathable.

A good snug fit that doesn’t constrict or pinch. No other handwear is required to be worn underneath.

*Suggested Brands:*
- Mountain Hardwear: Torsion Glove
- Outdoor Research: Extravert
- Black Diamond: Impulse

---

**Shell Mitts**

Mitts should be made with a waterproof/breathable shell material with a synthetic removable liner. Look for a mitt with a cinch strap at wrist, cinch cord at gauntlet and idiot cord. Insulating liner should be made of pile fleece or synthetic material and has hook loop attachment points that help secure the liner to the shell. Please note that the removable liner and shell are considered one unit and should not be counted as separate items when determining your handwear system.

You should be able to wear your lightweight synthetic liners inside your Shell Mitts. Sometimes a softshell glove can be worn inside mitts when insulating liner is removed.

*Suggested Brands:*
- Mountain Hardwear: Medusa Mitt
- Outdoor Research: Cornice Mitts
- Black Diamond: Element Mitt

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## Section 5

### Headwear

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Balaclava: Heavyweight

Face covering: Should be made of thick synthetic (fleece) fabric; most heavy weight Balaclava’s are constructed with a wind blocking fabric. Balaclava should provide full face/nose coverage without impeding visibility. Mouth area should be made of a mesh panel which helps to vent moisture but still provide adequate warmth. Some models have mesh paneling by ears to improve hearing. A removable face panel is nice optional feature.

Fit should be large enough to wear a lighter weight balaclava underneath.

**Suggested Brands:**
- Outdoor Research: Gorilla
- Mountain Hardwear: Windstopper Flex
- Marmot: Super Hero

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Balaclava: Lightweight

This lightweight head covering provide extra protection against the cold and wind. Face opening should be small enough to cover the mouth and nose but large enough for good visibility. Look for a thin synthetic blend material that offers some stretch for a snug fit. Bulky fabric is not recommended as it might impede helmet fit.

Fit should be snug.

**Suggested Brands:**
- Mountain Hardwear: Power Stretch
- Outdoor Research: ShapeShifter
- Marmot: Lightweight

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Buff

A hybrid between a neck gaiter and balaclava that offers a wide range of uses.

**Suggested Brands:**
- Buff: Buff Original
Baseball Hat / Sun Hat
Synthetic is preferred over cotton since it dries faster and helps transport moisture away from your head. Make sure it has a good bill to provide adequate sun protection.

**Suggested Brands:**
- Alpine Ascents Intl: Cool-Max Logo Cap
- Mountain Hardwear: Epic Rain Cap
- Marmot: PreCip Baseball Cap
- ArcTeryx: Wool Lid

Bandana
100% cotton bandana can be used to provide sun protection on your neck or used as a headband to keep sweat out of eyes.

Larger bandanas provide wider sun coverage and are easier to tie than smaller versions.

**Suggested Brands:**
- Various

Neck Gaiter/Buff
Fleece neck gaiter provides extra warmth around your neck. A Buff is not limited to being used only as a neck gaiter. It can be used in a variety of positions and functions.

**Suggested Brands:**
- Buff: Original Buff
- Mountain Hardwear: Stretch Rappel Bandana
- Turtle Fur: Neck Gaiter
Goggles

Goggles are worn when glacier glasses are no longer effective blocking wind/snow. Lenses should block 100% UV (UVA/B/C) and visible light rate should be greater than 33%. Ski goggles with lenses that are dark brown or rose/copper generally offer adequate level of protection. Climbers who wear corrective glasses can either purchase prescription goggles or wear goggles designed to wear over prescription glasses.

When sizing be sure that goggles allow a wide field of view and create a good seal around your eyes and bridge of your nose. There shouldn’t be any gaps in your seal as it would allow snow and wind to enter.

**Suggested Brands:**
- Julbo: Excel
- Smith:Around Excel OTG

Lightweight Synthetic/Wool Hat

Low profile warm hat that covers the ears. Knitted wool or air permeable fleece preferred. Wind stopping fabrics are also an option but tend to trap moisture inside.

**Suggested Brands:**
- Mountain Hardwear: Micro Dome
- Sherpa Adventure Gear: Jumla hat
- Marmot: Power Stretch Beanie

Warm Hat: Wool/Synthetic

Knit wool or fleece hat that fits comfortably. Hat should be highly air permeable which allows water vapor to move through the material and evaporate. Wind blocking/waterproof laminate is not recommended as breathability is significantly reduced.

**Suggested Brands:**
- Sherpa Adventure Gear: Renzing Hat
- Wapiti Woolies: Border Lo Pro
- Vermont Winter Hats: Skull Cap with Braid
Nose Guard
Particularly helpful to reduce the amount of exposure your nose has to damaging UV rays. Nose guards should be lightweight, breathable and flexible. Protects in wind/sun/cold.

One size fits most and models have a hook/loop attachment that fits a variety of sizes/styles of glacier glasses.

**Suggested Brands:**
- Beko: Nose Guard

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Sunglasses
Glasses should provide 100% UVA(B&C).

**Suggested Brands:**
- Smith: Toaster
- Native Eyewear: Dash XP

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Glacier Glasses
Harmful UV Radiation (UVA/B/C) is magnified by snow covered terrain and increases with altitude. Beside UV protection lenses must reduce transmission of visible light. A Cat 4 lens with a transmission of visible light of 3% to 8% is recommended for maximum protection. Glasses with photochromic lenses are popular since they automatically adjust to light levels allowing for a wider range of use. Design should be wrap around style or have side shields. A lightweight carrying case with cleaning cloth is recommended to protect glasses from damage when not in use. Wipe on Anti-Fog treatment is helpful. Prescription glasses can be obtained from www.Opticus.com

Make sure glasses form a snug fit around the eyes without leaving any gaps. Check for pressure points as excessive pressure for extended periods of time may lead to headaches.

**Suggested Brands:**
- Julbo: Dolgan
- Julbo: Advance Photochromic
- Julbo: Nomad
## Section 6

**Performance Clothing**

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Climbing Pants
Thick softshell pants or cotton pants with gusseted crotch for flexibility. Pants should be lightweight, breathable and allow for a wide range of motion. Cotton pants are comfortable for hot sunny weather but are not recommended for mountaineering as they retain moisture and take longer to dry.

Suggested Brands:
- Mountain Hardwear: Chockstone Pant
- Arc’teryx: Rampart Pant
- Prana: Stretch Zion Pant

Down Pants
Pants should have full side zips, reinforced high wear areas, baffled construction, down quality of at least 800 fill and suspenders. The most important features are water and wind resistance. Optional features to consider are: seat/crotch zippers and elastic ankle closures. Welded baffle construction is the only technique that truly makes a waterproof pant. As any stitching through waterproof/breathable fabric creates holes for water penetration however small.

Pants should be sized large enough to accommodate wearing all other layers at the same time. Manufacturers usually take this into account so sizing up is not always required.

Suggested Brands:
- Mountain Hardwear: Absolute Zero Pant
- Feathered Friends: Front Point Pant
- Marmot: 8000M Pant

Expedition Down Parka with Hood
Worn around camp, during breaks and when climbing is extremely cold. The expedition parka provides not only comfort but safety. Your parka should have an attached insulated down filled hood, baffle box construction (as opposed to sewn through stitching) and down quality should no less than 800 fill. Please note that parka designates a style of jacket that extends below waist. The Expedition designation denotes the category of down parkas that provide the highest level of warmth.

Down parkas fit is less tailored and slightly oversized as compared to a shell or soft shell jacket. So generally if you are a Large then a Large parka should fit. But as manufacturer’s designs vary so do the cuts of their jackets so it is always best to try on the clothing you will be wearing while climbing. Should fit over your soft shell layer.

Suggested Brands:
- Mountain Hardwear: Absolute Zero Parka
- Marmot: 8000M Parka
- Feathered Friends: Rock and Ice Parka
- The North Face: Himalayan Insulated Parka
**Insulated Down Jacket with Hood**

Worn during breaks, around camp and climbing in cold conditions. Down jackets must have an insulated hood, baffle construction and contain a minimum of 650 down fill. Jackets that have sewn through stitching are not acceptable. This type of construction does not insulate as well as baffle construction. The most important features are water and wind resistance. Jackets can have but not required: waterproof/breathable exterior shell fabric, zip off hood and powder skirt.

The fit on a down jacket is less tailored and slightly oversized as compared to a shell or soft shell jacket. So generally if you are a Large then a Large parka should fit. But as manufacturers’ designs vary so do the cuts of their jackets so it is always best to try on the clothing you will be wearing while climbing.

**Suggested Brands:**
- Mountain Hardwear: Sub Zero SL Hooded Jacket
- Marmot: Greenland Baffled Jacket

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**Insulated Synthetic Jacket with Hood**

Used as your final insulating layer when other layers are not warm enough. Your hooded jacket should be constructed of lightweight materials and have a insulated hood. Primaloft is a very popular synthetic material as it provides a high degree of loft and warmth but still highly compressible. The most important features are water and wind resistance.

You should be able to wear all your other layers underneath this jacket.

**Suggested Brands:**
- Mountain Hardwear: Hooded Compressor
- Patagonia: Micro Puff Hooded Jacket
- Marmot: Ellsworth Jacket

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**Insulated Synthetic Pants**

Superlight, synthetic fill provides excellent warmth-to-weight ratio, compresses easily and insulates when wet. Specifically designed for mountaineering where moisture and weight are factors. Pants should have full side zips which allows for temperature regulation and easy on/off. The most important features are water and wind resistance.

Make sure you can wear your other pant layers underneath this pant.

**Suggested Brands:**
- Mountain Hardwear: Compressor PL Pant
- Wild Things: EP Pant
- Integral Designs: Denali Pant
Long Underwear Bottom: Heavyweight
This heavy baselayer has a fleece like weave (like Smartwool) to the fabric and it should be made of moisture wicking synthetic material. Look for pants that have flatlock stitching, gusseted crotch and thin brushed waist band.
Snug contoured fit is important as it helps reduce bulk and allows full range of motion. Should be able to fit over Lightweight Underwear.

**Suggested Brands:**
- Mountain Hardwear: Power Stretch Tight
- Patagonia: Capilene 4 Bottoms
- Marmot: Wool Bottom

Long Underwear Bottom: Midweight
This midweight baselayer should be made of moisture wicking synthetic material. Look for pants that have flatlock stitching, gusseted crotch and thin brushed waist band.
Snug contoured fit is important as it helps reduce bulk and allows full range of motion.

**Suggested Brands:**
- Smart Wool: Midweight NTS Pant
- Patagonia: Capilene 3 Bottoms
- Mountain Hardwear: Continuum Midweight Tight

Long Underwear Bottom: Lightweight
This thin baselayer should be made of moisture wicking synthetic material. Look for pants that have flatlock stitching, gusseted crotch and thin brushed waist band. Some models offer boot length cut which helps reduce bulk and pressure points above the ankle.
Snug contoured fit is important as it helps reduce bulk and allows full range of motion.

**Suggested Brands:**
- Mountain Hardwear: Advance Full Length Tight
- Patagonia: Capilene 2 Bottoms
- Smart Wool: Lightweight NTS
Long Underwear Top: Heavyweight

This midweight baselayer should be made of synthetic fibers or Merino wool. Key features to look for are crew style neck, raglan sleeves and flatlock stitching. An option instead of crew style neck is a zip neck which allows easier temperature regulation.

Snug contoured fit is important as it helps reduce bulk and allows full range of motion. Should fit over Lightweight Underwear.

Suggested Brands:
Patagonia: Capilene 4 Zip-Neck
Mountain Hardwear: Power Stretch Zip T
Marmot: Wool Half Zip

Long Underwear Top: Midweight

This midweight baselayer should be made of synthetic fibers or Merino wool. Key features to look for are crew style neck, raglan sleeves and flatlock stitching. An option instead of crew style neck is a zip neck which allows easier temperature regulation.

Snug contoured fit is important as it helps reduce bulk and allows full range of motion.

Suggested Brands:
Smart Wool: Midweight NTS
Mountain Hardwear: Integral Zip T
Patagonia: Capilene 3 Crew

Long Underwear Top: Lightweight

This baselayer is should be made of synthetic fibers or Merino wool. Key features to look for are full style neck, raglan sleeves and flatlock stitching.

Snug contoured fit is important as it helps reduce bulk and allows full range of motion.

Suggested Brands:
Mountain Hardwear: Continuum Lightweight Crew
Patagonia: Capilene 2 Crew
Smart Wool: Sport NTS Crew
Shell Jacket
A hard shell (Gore-Tex) layer provides protection against wind and rain and generally worn over long underwear and soft shell jacket. It may be worn only over long underwear in warmer conditions. Fabric should be waterproof/breathable (such as Gore-Tex) and should not have any built in insulation. Waterproof/breathable jackets with insulation are not as versatile since insulation is not always needed. Jacket should have a zipperd collar to provide face protection, full coverage hood and pit zippers to regulate ventilation.

Suggested Brands:
Mountain Hardwear: Optimo Jacket
Marmot: Minimalist Jacket
Arc’teryx: Beta AR Jacket

Shell Pants
Pants should be made of a waterproof/breathable fabric. Full length side zippers preferred as it allows easy removal of pants when wearing mountaineering boots and crampons. Pants with 7/8th zippers (zipper stops short of hip) are useful but are not as easy to take on and off if you are wearing mountaineering boots. There should not be any extra insulation in your pants such as you find in a ski pant as the extra insulation is not always needed when traveling. A light nylon or nylon mesh lining is ok and not considered extra insulation but it does add unnecessary weight. A nylon lining is designed to reduce abrasion to the backing of the waterproof/breathable fabric. Reinforced knees and seat are beneficial as waterproof/breathable fabric tends to wear faster in these areas.

You should be able to comfortably wear your light pant layers under your shell pants.

Suggested Brands:
Mountain Hardwear: Escape Pant
The North Face: Eurus Pant
Outdoor Research: Paladin Pant

Short Sleeve Synthetic Shirt
Lightweight crew style t-shirt that wicks away moisture. Shirt can be made of any synthetic material.

Suggested Brands:
Mountain Hardwear: Justo Trek SS Shirt
Patagonia: Capilene 2 T-Shirt
Smart Wool: Sport NTS Tee
Soft Shell Jacket

Functions as an insulating layer that provides some weather protection and worn over long underwear layers. Preferred over fleece since it is less bulky and sheds moisture. The air permeable variety of soft shell is better suited for moisture transport than a soft shell fabric with a wind blocking or waterproof laminate. This is the jacket you will likely spend the most time in while climbing.

**Suggested Brands:**
- Mountain Hardwear: Brono Jacket
- Marmot: Leadville Jacket
- Arc’teryx: Gamma MX Hoodie
- Outdoor Research: Cirque Jacket

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Soft Shell Pants

This light insulating layer breathes well and provides better protection against wind and light rain than trekking pants. Since it is highly air permeable it can be worn even during warm conditions. Keep in mind that thicker soft shell fabric or soft shell with a wind blocking waterproof laminate is not going to perform as well in warmer conditions. If it starts to get colder while using an air permeable soft shell additional layers can always be added.

**Suggested Brands:**
- Mountain Hardwear: Nima Pant
- Patagonia: Guide Pant
- Mammut: Glacier Pant
- Outdoor Research: Cirque Pant
- Marmot: Tioga Pant

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Synthetic Hiking Shorts

Look for a comfortable pair of hiking specific shorts that wick away moisture and allow for wide range of motion.

**Suggested Brands:**
- Mountain Hardwear: Wildlands Short
- Ex Officio: Nio Amphi Short
- Patagonia: Borderless Shorts
Trekking Pants
Lightweight nylon pants designed to be used while trekking. They are extremely air permeable, dry quickly and provide sun protection. Zip-off lower leg sections are convenient for switching to shorts.

Suggested Brands:
Ex Officio: Nomad Pant
Ex Officio: Gobi Pant
Mountain Hardwear: Matterhorn Convertible
## Section 7

### Personal Care

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Ear Plugs

Inexpensive foam earplugs are helpful when trying to sleep.

**Suggested Brands:**
- Eagle Creek: Earplanes Ear Plugs
- Eagle Creek: Travel Ear Plug Set

Hand Sanitizer

Alcohol based hand sanitizer in a small plastic bottle with flip lock lid. For sanitizer to be effective it must contain at least 60% alcohol.

**Suggested Brands:**
- Purell: Instant Hand Sanitizer
Insect Repellent
Small, plastic, leak-proof bottle.

**Suggested Brands:**
- 3M: Ultrathon
- Adventure Medical: Ben’s 30% Deet
- Repel: Sportsmen Max 40

Lipscreen
Lip balm with UVA and UVB protection with a SPF rating of at least 23. Please note that sunscreens expire 2 years after date of manufacture.

**Suggested Brands:**
- Various

Pee Bottle
Helps promote good hydration since it is not always comfortable leaving the tent at night especially in cold weather. Bottles can either be a plastic large mouth with leak proof lid or a plastic collapsible “canteen”. Make sure the bottle is clearly marked, Pee Bottle.

Bottle size should be 1 liter minimum.

**Suggested Brands:**
- Nalgene: Wide-Mouth Loop-top Round
- Nalgene: Wide-Mouth Cantene
Pee Funnel (For Women)
Lightweight urinary director. For minimal undressing for discreet use.

**Suggested Brands:**
Sani-Fem: Freshette F.U.D.

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**Personal First Aid Kit**
Lightweight and small the kit is intended to treat minor scrapes, cuts and blisters. Store the following items in a zip loc bag: moleskin, mole foam, waterproof first aid tape, athletic tape, band aids and triple antibiotic ointment.

Moleskin is an adhesive pad with a soft pile made of heavy cotton fabric it is used to treat hotspots which prevents the formation of blisters.

Mole foam is much like moleskin but foam provides padding and relieves pressure on a formed blister. It is used by cutting a donut shaped piece and placing it over the blister. Waterproof first aid tape securely adheres bandages to wounds.

Athletic tape is used not only to adhere bandages but also works as support strapping for immobilization used for treating strains and sprains.

Triple antibiotic ointment is a topical antimicrobial cream.

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**Sunscreen**
Sunscreen should have UVA and UVB protection with a minimum 30 SPF rating. Please note that sunscreens generally expire 2 years after date of manufacture.

**Suggested Brands:**
Aloe Gator: Super Waterproof Gel
Sol Sunguard: Altitude
Toiletries

Please consult your gearlist for your list of required items.

Waste Kit

A portable toilet kit used to easily transport personal waste from the mountains. It is sanitary, safe, and environmentally-friendly, waste removal system. Reduces impact on fragile alpine environment.

**Suggested Brands:**
Clean Waste: Wag Bag

Water Treatment Tablets

Iodine or Chloride Dioxide tablets. A small bottle or multi pack is sufficient. Taste neutralizer tablets remove iodine taste. Chloride Dioxide formulas will not discolor water.

**Suggested Brands:**
Potable Aqua: Iodine Tables
Aqua Mira: Water Purifier Tablets
## Section 8

### Personal Equipment

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- Umbrella 57
- Waterproof Dry-Bag 57
Backpack: Alpine

Check your gearlist for specific size requirements. Not all Brand/Model suggestions are specific to your trip. This category gives models ranging approximately from 2,000 to 3,000 cu.in. (32 to 50 Liters) Pack should be lightweight and simple. Regardless of volume - the single most important factor in choosing a backpack is getting the correct frame for your body size.

**Suggested Brands:**
- Mountain Hardwear: Dihedral (40.15L)
- Deuter: Guide Lite 32
- Black Diamond: Predator (50L)
- The North Face: Prophet 45
- Marmot: Eiger 35
- Cilo Gear: Dyneema 45L

Deuter: Guide 45+
Black Diamond: Speed 40
The North Face: Prophet 35
Marmot: Eiger 45

Backpack: Expedition

Check your gearlist for specific size requirements. Not all Brand/Model suggestions are specific to your trip. This category gives models ranging approximately from 5,000 to 6,500 cu.in. (82 to 105 Liters) Internal frame pack should be a top load design that is simple and lightweight. Avoid any unnecessary zippers and pockets which add extraneous weight. Pack designs vary but generally ultralight packs do not provide the necessary support nor are they comfortable when carrying heavy loads. Your pack should have one continuous main compartment as everything will be accessed from the top of the pack.

Regardless of volume - the single most important factor in choosing a backpack is getting the correct frame for your body size. You should have your backpack properly sized by a professional.

**Suggested Brands:**
- Mountain Hardwear: Direttissima (53L)
- Deuter: Guide Lite 32
- Black Diamond: Predator (50L)
- The North Face: Prophet 45
- Marmot: Eiger 35
- Cilo Gear: Dyneema 45L

Deuter: Guide 45+
Black Diamond: Speed 40
The North Face: Prophet 35
Marmot: Eiger 45

Backpack: Trekking

Check your gearlist for specific size requirements. Not all Brand/Model suggestions are specific to your trip. This category gives models ranging approximately from 3,200 to 4,600 cu.in. (52 to 105 Liters) Internal frame pack should be comfortable and lightweight. Pack should have not have any dividers in the main compartment. Regardless of volume - the single most important factor in choosing a backpack is getting the correct frame for your body size.

**Suggested Brands:**
- Mountain Hardwear: Direttissima (53L)
- Mountain Hardwear: South Col (75L)
- Black Diamond: Quantum 55
- Deuter: Act Lite 50+10
- Cilo Gear: Dyneema 60 WorkSack

Black Diamond: Quantum 65
Deuter: Aircontact 65+10
Cilo Gear: 75 Liter WorkSack
Binoculars
A good quality pair of compact style binoculars are easy to travel with and still offer excellent viewing. Binoculars with 8 X 25 or 10 X 25 are well suited for daytime viewing. Mid-Size and Full-size Binoculars work well but are more difficult to transport.

Suggested Brands:
Nikon: Trailblazer ATB
Brunton: Echo Waterproof

Closed Cell Foam Pad
Used in conjunction with the self-inflating pad. The foam pad is lightweight, waterproof and retains full insulation even if punctured. The foam pad should be very firm. R-value (measures the resistance of heat loss) should be above 2.2, the thicker the pad; the higher the number. Pads with surface ridges are preferred but folding “egg crate” style pads are also acceptable. The majority of climbers have the closed cell pad below the self-inflating when sleeping. A thin nylon buckled strap is helpful to keep the pad from unrolling when not in use.

Pad should be the roughly the same size length and width of your self-inflating pad.

Suggested Brands:
Cascade Designs: Therm-a-Rest Ridge Rest Solite
Cascade Designs: Therm-a-Rest Z-Lite

Compass
A compass will be used to learn advanced off-trail navigation. Compass features should include a sighting mirror, a declination adjustment and lanyard. A sighting mirror is very important as improves accuracy of readings it also allows you to check your bearing while sighting. Look for other features, such as a magnifying glass on base plate (that makes it easier to read map markings), luminescent markings and clinometer. (A clinometer measures slope angle which can help in avalanche assessment).

Suggested Brands:
Silva: Guide 426 Graphite
Brunton: 26DNL-CL
Suunto: MCA-D Challenger
Compression Stuff Sack

Used to decrease sleeping bag volume before packing it in your backpack. Fabric types vary from nylon to lightweight sil-nylon. Lightweight compression sacks perform well but are not as durable as nylon. Either are acceptable but take care when using sil-nylon sack as they are less durable and can be easily damaged with improper use. If a compression stuff sack is included with the purchase of your sleeping bag no other sack is required.

Your sleeping bag should fit entirely in the bag before being compressed.

**Suggested Brands:**
Granite Gear: Round Rock Solid
Outdoor Research: Helium Compression
Outdoor Research: DryComp Summit Sack
Granite Gear: Air Compressor
Sea To Summit: Ultra Sil Compression

Headlamp

LED headlamps preferred due to their low bulk, long battery and bulb life. Spare bulbs not necessary for LED lights. A greater number of bulbs and or higher watt bulbs provide great visibility but drain batteries faster. To address this issue most headlamps come with adjustable brightness modes along with combining different watt bulbs. Look for a high quality headlamp that provides adequate lighting.

Always Carry Extra Batteries!

**Suggested Brands:**
Black Diamond: Icon
Princeton Tec: Apex
Mammut: Lucido TX1

Self Inflating Pad

This nylon self inflating foam mattress provides cushioning and insulation from the ground. It should be low volume, highly compactable and lightweight. Slotted foam core is preferred over solid since it is more compressible. A non-slip texture on exterior fabric reduces pad creep when sleeping. Be sure to include a repair kit. The kit should include glue and fabric patches.

Pad should be no wider than shoulder width and no longer than your height. Tapered designs help reduce weight. Important to protect pad well when packing in your backpack.

**Suggested Brands:**
Cascade Designs: Therma-A-Rest NeoAir
Cascade Designs: Therma-A-Rest ProLite 4
Mammut: Slide Stop Mat
Sleeping Bag: 20 Degree
High quality mummy-style with hood. Sleeping bags can be either down or synthetic. Down sleeping bags are lighter weight, have higher compressibility and temperature rating does not decrease with amount of use. (Down bags are more expensive and require more care and need to stay dry. A synthetic sleeping bag is less expensive and retains insulating value when wet. Yet synthetic fibers slowly breakdown with repeated use and over a long period of time insulation value starts to decrease. Fibers are heavier and do not compress as well as down.

Since your body heats the sleeping bag an efficient sized sleeping bag would have little excess room. But you need to balance efficiency with comfort so a little extra width and length is recommended. This is especially true if you need to sleep with a warm water bottle or extra clothing.

Suggested Brands:
- Mountain Hardwear: Lamina 20
- The North Face: Cats Meow
- Sierra Designs: Verde 20

Sleeping Bag: 0 Degree
High quality mummy-style with hood. Sleeping bags can be either down or synthetic. Down sleeping bags are lighter weight, have higher compressibility and temperature rating does not decrease with amount of use. (Down bags are more expensive and require more care and need to stay dry. A synthetic sleeping bag is less expensive and retains insulating value when wet. Yet synthetic fibers slowly breakdown with repeated use and over a long period of time insulation value starts to decrease. Fibers are heavier and do not compress as well as down.

Since your body heats the sleeping bag an efficient sized sleeping bag would have little excess room. But you need to balance efficiency with comfort so a little extra width and length is recommended. This is especially true if you need to sleep with a warm water bottle or extra clothing.

Suggested Brands:
- Mountain Hardwear: Wraith SL
- Feathered Friends: Ibis
- Marmot: Never Summer
- The North Face: Snowshoe
- Western Mountaineering: Kodiak MF

Sleeping Bag: -20 Degree
High quality mummy-style with hood. Sleeping should be made of down fill have baffle construction. A waterproof/breathable shell fabric is helpful but not required. Down sleeping bags are lightweight and highly compressible as compared to synthetic bags. At this temperature rating a synthetic bag would be too heavy and bulky to use.

Since your body heats the sleeping bag an efficient sized sleeping bag would have little excess room. But you need to balance efficiency with comfort so a little extra width and length is recommended. This is especially true if you need to sleep with a warm water bottle or extra clothing.

Suggested Brands:
- Mountain Hardwear: Wraith SL
- The North Face: Solar Flare
- Marmot: Col EQ
- Feathered Friends: Ptarmigan
- Western Mountaineering: Puma MF
Sleeping Bag: -40 Degree
High quality mummy-style with hood. Sleeping should be made of down fill have baffle construction. A waterproof/breathable shell fabric is helpful but not required. Down sleeping bags are lightweight and highly compressible as compared to synthetic bags. At this temperature rating a synthetic bag would be too heavy and bulky to use.

Since your body heats the sleeping bag an efficient sized sleeping bag would have little excess room. But you need to balance efficiency with comfort so a little extra width and length is recommended. This is especially true if you need to sleep with a warm water bottle or extra clothing.

**Suggested Brands:**
- Mountain Hardwear: Ghost SL
- Feathered Friends: Snow Goose
- Western Mountaineering: Bison GWS

Snow Stakes
Snow stakes are specifically designed secure tents in snow. Metal stakes w/ holes are preferred over nylon “parachute” style stakes. Metal stakes are easier to set and remove from the snow. Normally 8-9 stakes are required for most tents. Generally 10 inches in length.

**Suggested Brands:**
- MSR: Blizzard
- SMC (Seattle Manufacturing Inc): Perforated Tent State

Tent: Mountaineering 4 Season
Good quality, 2 person, 4-season mountaineering tent with snow stakes. Single pole shelters are not recommended since they can not hold up in strong weather. Make sure there are guy lines are attached on body “stake out straps” and fly guy points. If you have questions about guying out your tent please consult your manufacturers’ information. If you have any further questions we can address them during the gearcheck when tent information is covered. No 3-season tents. A freestanding double wall tent is preferred.

**Suggested Brands:**
- Mountain Hardwear: Trango 2
- Mountain Hardwear: Spire 2
- Outdoor Research: Exped Polaris
- Marmot: Thor 2P
- The North Face: Mountain 25
Tent: Backpacking 3 Season
Good quality 3 season tent designed for backcountry use. Free standing tents preferred since they don’t require staking lines to hold up tent. Keep in mind that larger mesh panels allow tent to breath better and make tent lighter but are not as warm. All floor seams should be either factory sealed/taped or should be treated at home. Two door designs allow easy entry and generally have two vestibules which allow plenty of storage and a unobstructed entry. Be sure to attach guylines and bring tent stakes.

Suggested Brands:
Mountain Hardwear: Hammer Head
Marmot: Aeolos 2P
The North Face: Roadrunner

Trash Compactor Bags
Durable plastic garbage bag used as a lightweight and inexpensive waterproofing bag. Compactor style bags are more durable than traditional garbage bags. Please note these are not the paper wax/plastic covered bags.

Bag should be 2.5 or 3 mil thick and hold 18 gallons.

Suggested Brands:
Husky: 2.5 Mil White
Hefty: Trash Compactor Bag

Trekking Poles
Collapsible three section preferred. Helpful for balance when traveling over uneven terrain or if you have knee problems. Click lock style pole length adjusters are preferred over internal twist lock expanders as they have shown to perform better over a longer period of time.

Suggested Brands:
Black Diamond: Trail
Black Diamond: Contour Elliptic
REI: Peak UL Carbon
Treking Poles with Snow Baskets
Collapsible three section preferred. Helpful for balance when carrying a heavy pack and if you have knee problems. Small trekking baskets are not allowed. Click lock style pole length adjusters are preferred over internal twist lock expanders as they have shown to perform better over a longer period of time.

**Suggested Brands:**
- Black Diamond: Contour Elliptic Carbon
- Black Diamond: Trail
- Komperdell: Snaplock Carbon

Umbrella
A “golf” size umbrella provides excellent protection. Double canopy with vents are beneficial as they catch less air flow in windy conditions.

**Suggested Brands:**
- Nike: 42” Double-Canopy
- Gustbuster: Metro

Waterproof Dry-Bag
This bag is used to store personal items and travels with you while on the climb. No other duffle bag can substitute for this item.

Dry bag must be 115 liters no other size is allowed.

**Suggested Brands:**
- Cascade Designs: Seal Line Boundary Pack
- NRS: System 5 Dry Bag
Section 9

**Traveling**

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Camera Gear
Keep it simple and light. Digital cameras work well at altitude but be sure to include a back up battery. It’s recommended to bring along an additional memory card if you plan to take a large number of high resolution photos. Like all battery operated devices temperature effects performance of batteries. For optimal performance it’s recommend to keep your camera warm. You can either store it in your pack wrapped with clothing or you can keep inside your jacket while travelling. Always make sure to protect your camera from moisture either with a zip loc bag or a small lightweight weather resistant case.

Suggested Brands:
Canon: PowerShot SD870
Pentax: Optio W60

Duffel Bag: Small
Nylon duffle with double zipper. Zipper pulls should have a large enough whole in order to attach a small travel lock.

Suggested Brands:
Eagle Creek: ES Cargo Duffel
REI: Duffel Bag
The North Face: Flyweight Duffel
Expedition Duffel Bag with Lock

Expedition style duffel bag that is durable and can withstand the abuse of travel. Double zipper pulls allow opening to be secured with lock. Be sure to bring a long a TSA approved lock for your bag.

Check your gearlist for the recommended size.

**Suggested Brands:**
- Mountain Hardwear: Expedition Duffel
- Patagonia: Black Hole Duffel
- Black Diamond: Huey
- The North Face: Base Camp Duffel

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**Travel Clothes**

Non technical clothing that is comfortable to wear.