**Getting Started**

I have an inclination to say JUST DO IT, but I cannot, because the backcountry can be a dangerous place, even for those who are experienced. Consequently, I recommend a few preliminary steps as you begin your backpacking adventures.

* Acquire Backpacking Knowledge thru reading:
	+ Read at least one reputable book on backpacking basics and one on backcountry first aid (not the same as Red-Cross methods).

Basic Backpacking
[Backpacking One Step at a Time](http://www.amazon.com/exec/obidos/ASIN/0394729390/lightweighhiking%22%20%5Ct%20%22_blank); Harvey Manning; Paperback.

First Aid
[Mountaineering First Aid : A Guide to Accident Response and First Aid Care (5th Edition)](http://www.amazon.com/exec/obidos/ASIN/0898868785/lightweighhiking%22%20%5Ct%20%22_blank); Jan D., Phd Carline, Martha J., Rn Lentz, Steven C. MacDonald; Paperback.

[Wilderness Medicine, Beyond First Aid (5th Edition)](http://www.amazon.com/exec/obidos/ASIN/076270490X/lightweighhiking%22%20%5Ct%20%22_blank); William Forgey; Paperback.

* Acquire Knowledge & Experience thru Courses & Backcountry Organizations:
	+ Mountaineering, Backpacking, Hiking, offered by local governments, schools, and private outdoor groups.
	+ Join an Outdoor Club (Sierra Club, Mountaineers, Hiking Clubs, etc.). These groups provide a fast way to learn proven techniques & make friends who have similar interests.
* Get in Shape--Stay in Shape:

I recently heard someone referring to backpackers, in general, as having a T-REX SYNDROME. That is, obsession with exercising only the legs. In fact, it's important for hiking, and especially backpacking, that we have strong lower back, upper back, and abdominal muscles, in addition to strong legs. Find exercises that strengthen those muscles. For example, a rowing machine--as well as a machine like the Health Rider--will work the back, leg, and ab muscles. For those of us who get bored sitting on a machine, get a bicycle and rowboat.

I have found, however, that lifting weights, machine workouts, jogging, etc., is appropriate and very helpful, but for some reason, the only activity that really keeps me in shape for alpine hiking, backpacking, and scrambling--which is what I do--is hiking. You can find my method of staying in shape for year-around backpacking, here:

Here are some suggestions for getting in shape, staying in shape, and staying healthy:

**Know your physical condition**. Not just the "in shape" or "outta shape" question, but how's your heart--had a checkup lately ? Know as much as possible about your current condition before you even start an exercise program (if not already on one). That knowledge will also minimize potential problems in the backcountry. If you have a health condition, of any consequence, understand the implications and consequences of strenuous exercise and venturing into the backcountry, beforehand. If you haven't already, get the medical check-up, to find out--one way or the other--if you have anything to be concerned about. The backcountry is not the place for medical emergencies. There's no 911 out there !

**Already in Shape ?** If you exercise regularly, you may already be in good enough shape to tackle day hikes over easy to moderate terrain. However, walking (or jogging--not something I would do) on pavement is not the same as carrying a pack over a rough trail tread. My suggestion, is to first, at least, put on a pack loaded with 5 more pounds than you would be carrying on your hike, then truck around the neighborhood for a few miles to see how it feels. Next, plan a short hike to see how you fare on a trail with the pack on. Gradually, in addition to your regular exercise program, take more difficult hikes that keep challenging you as well as increasing your level of conditioning and endurance. This method is the least painful, if you will, because it leverages off of what you already have and gets you on the trail, immediately. What could be better, hiking yourself into hiking condition.

**Not in Shape ?** If you're not in good physical condition, you should take the time to set up a regular exercise program. It must be consistent and it must be a priority (or, guaranteed, you will not be consistent and you'll always be on the brink of getting in shape--but not quite). Hey, I bin there !

**Just Start Somewhere**. Swimming, Biking (human powered), Walking. It's good to have a variety of activities which exercise a variety of muscles. Machines are okay--Health Rider, Nordic Track, Stationary Bikes, Rowing Machines, Tread Mill--they all work okay, some better than others. I use a combination of Health Rider, free weights, and hiking to stay in shape. Somedays, I don't feel like sitting inside on a machine, so I just lift a few weights, then strap weights to my ankles and take a two mile walk. Point is, start a program you're comfortable with and stick to it on a consistent basis.

**Anticipate Level of Difficulty, and Train Accordingly**: You will put yourself and your fellow packers at risk, if you think you can wait til the trip and then get in shape on the trail. Two years ago, I went on a five-day trip with a group of Mountaineers. One of the people used to hike with his sons carrying 50 pounds of gear. He was fairly active, a skier and such, so thought he would be okay, based on past experiences. Thus, he went on the hike without training specifically for it. He lasted half a day. Couldn't go on--he was really hurtin. Had to go back to the trailhead and wait for us for four additional days (because he was one of the drivers). At least he didn't get hurt.

Moral: get in shape to carry your anticipated 40 pound load before the trip. Several weeks before a trip, I anticipate how much weight I will be carrying, then prepare a pack that weighs 10 pounds more than that. That, then, becomes my training pack for the next several weeks--about four or five nights a week--right up to two or three days before the trip. In addition, I continue with my normal exercising routine. That way, I'm confident I will be successful on the trail and that my fellow packers can count on me to be strong and healthy.

**Stretching is important**. Stretching muscles reduces muscle tension and allows better, more flexible movement. Prior to your daily workout, whether in the backcountry, or at home, take some time to stretch your lower back, legs, torso, neck, etc. If you're not sure how or what, do some research--there's plenty of material available on the subject. The point I want to make here is that stretching is necessary and will help prevent soreness and injury, both on and off the trail.

**Prevent "Pack Lifting" Injury**. Jerking a 35 pound (or more) pack off the ground and swinging it onto your back is a good way to injure your back. There's several popular, and safe, ways to do it. The one I use the most is to place my pack on the ground with shoulder harness facing me; next, I grab the shoulder straps--one in each hand--, and with straight to slightly bent back and slightly bent knees, I put my knee into the backpadding of the pack and pull the pack up my leg to the upper thigh. With my leg now under the pack for support, I slide my right arm thru the shoulder harness and then turn and do the same with my left arm. Next, I tighten the hip belt and proceed to secure pack as usual. This may have taken a lot of words to explain, but it's relatively fast and safe. Another method is to rest the pack on a tree stump or embankment and squat down to slip into the shoulder harness. Yet another method is to have someone hold the pack while you slip into the harness.

* Stay in Shape During the Winter:

Especially the older we get (I'm 65+), trying to "get in shape for the hiking season" results in significant physiological and psychological stress. Lack of commitment to physical conditioning is probably the main reason that many people, who otherwise enjoy hiking and backcountry activities, give it up. It can be hard work (and painful) especially if you are not in proper physical condition.

There are numerous ways to stay in shape, during the Winter. The first requisite, though, is to make it a priority, otherwise you probably won't find the time, at least not on a consistent basis.

My personal training regimen remains consistent throughout the year. I do leg, back, and neck stretches as well as abdominal exercises at least once and sometimes twice a day. Four or five times a week I exercise my leg and back muscles on a *Health Rider* machine (saw it advertised in *Backpacker Mag.*--don't regret getting one). I put 50 pounds of weight on it (under the seat) and proceed to do 200 to 400 reps. Let's see, that's 50 lbs + my 165 lbs = 215 lbs that my legs are pushing.

I also exercise arms and shoulders with 6.6 lb dumb-bells. Then, after the stretching & warmup exercises, I don a 30 pound pack, strap 5 lb weights on each ankle (in addition to a 2.5 pound Raichle Eiger boot on each foot) and proceed to hike 2 miles up and down the Cascade foothills around my home--again four or five times a week. Oh yes, I also go hiking, year around.

It's important for hiking, and especially backpacking, that we have strong lower back, upper back, and abdominal muscles, in addition to strong legs. Find exercises that strengthen those muscles. For example, a rowing machine--as well as a machine like the Health Rider--will work the back, leg, and ab muscles. For those of us who get bored sitting on a machine, get a bicycle and rowboat.

I have found, however, that lifting weights, machine workouts, jogging, etc., is appropriate and very helpful, but for some reason, the only activity that really keeps me in shape for alpine hiking, backpacking, and scrambling--which is what I do--is hiking. So how about you ? Find out what works for you and then JUST DO IT !

**The Most Important Essential--Common Sense**

* "**Common Sense**"--one of those abstract concepts that we use when talking to employees, students, and children, with the assumption that everyone understands what it means, when if fact, we don't. Well, here's what it means when I use it:
	+ **Common-Sense Glossary:** (from the *Oxford Modern English Dictionary*):
		- **Sense**: (n) .....**4.a/** quick or accurate appreciation, understanding, or instinct regarding a specific matter....**b/** the habit of basing one's conduct on such instinct. **5/** practical wisdom or judgement, common sense; conformity to these....
		- **Common Sense**: (n) sound practical sense, esp. in everyday matters.
		- **Practical**: (adj) **1/** concerned with practice rather than theory. **2/** suited to use or action.....**5/** concerned with what is actually possible.
		- **Pragmatism**: (n) ......**2/** a philosophy that evaluates assertions solely by their practical consequences and bearing on human interests.
		- **Intuition**: (n) **1/** immediate apprehension by the mind or by a sense. **2/** immediate insight.
		- **Instinct**: (n) **b/**....propensity in human beings to act without conscious intention; innate impulsion. **2/** unconscious skill; intuition.
		- **Sixth Sense**: (n) ....facility giving intuitive or extrasensory knowledge.

The exercise of common-sense is a requirement for the entire "backcountry-experience life-cycle", from initial thoughts, thru actual planning, transportation to, execution of backcountry trip, and return trip home.

* **Plan Carefully**. Plan your backcountry trips, thoroughly, before you leave home. Be as knowledgeable about what lies ahead as physically possible, and you will be much better positioned to achieve and maintain a healthy attitude, perceived and actual security, as well as a darn good time. The following link gets into the details of planning out a trip:
* **Communicate Your Plans** to Friends & Family. Make a hardcopy of the destination and time table for your trip and give it to friends or family. Draw on a topographical map where you will be, how long you will be there, and when you should be back home. This may be your link to survival should you run into trouble in an isolated area. This is also covered in *The Trip Planner* page.
* **Know When to Turn Around & Go Back**. Follow your knowledge, training, and gut instincts (the "sixth sense"). If you are unsure about a traverse, a climb, a trail, exposure to weather--whatever--back off, live another day, and contemplate your alternatives. Select a different route; Pitch your tent and layover until the storm passes; Wait til morning when the river's water level is lower, before crossing, etc. Keep in mind, ignoring your "sixth sense" and pushing forward into a questionable situation might be challenging and macho, but it can also be called stupid and have deadly consequences. Remember, many of the climbers who've been killed on Everest were the victims of their own inability to turn around when their guts were telling them to do so.
* **Listen to Your Body**--Undress Before Overheat, Dress Before Chills--Drink Often--Eat Regularly.

Not only does our pyschological and spiritual being speak to us, but our physiological parts send us loud messages, as well.

Hypothermia is a real concern in the backcountry. It's a condition resulting from your body's core temperature dropping below normal. The symptoms you'd likely experience are lack of coordination, chills & shivering, slow speech, and acting out of character. It's important to recognize and even anticipate these early warning signs, and respond to them, accordingly. Several of the mild cases that I've seen resulted from persons exerting high-energy, getting wet with their own sweat, then getting chilled when they stop. For mild hypothermia, get the person into warm, dry conditions--clothes, tent, sleeping bag and provide and encourage consumption of warm drinks.

Hyperthermia is also a problem. It can occur, mainly in hot, dry summer temperatures, when your internal body heat can't be released fast enough and you overheat.

The Mountaineering First Aid book, suggested earlier, covers in detail, both hypo & hyperthermia. You can also go here for links which deal with both conditions:

Links for Hypothermia & Hyperthermia

I automatically put on a jacket when I stop, even if the sun is out. Once I dry off a bit and my body temperature stablizes, I can take off the jacket. The point is this, try to avoid dramatic body temperature swings, one way or the other. When you first start out on a hike, it's typical that you'll want to stop after about 15 minutes or so, to take a "clothes break". Take off your jacket or long underwear bottoms so that you don't overheat on the trail. When stopping for breaks, either (1) make the breaks short enough that you don't get chilled or (2) put some clothes on. Repeat this cycle of putting clothes on and taking clothes off, forever.

Drink much fluid, eat much food. Many times, I get so caught up in "truckin down the trail" that I forget to stop and eat and drink. On several occasions, I've experienced dehydration and got a little sick. I usually recognize the need to snack on the trail, though, as I start to lose energy after awhile, so I must grab a little snack to refuel. The point here is that it is critical to replace the fluids that are gushing out of your body, as you exercise, as well as a steady supply of nutrition, via snacks & meals, in order to maintain health & energy.

* **Carry Gear That You Perceive Will Maintain Your High Level of Security**: Determine the gear that YOU NEED to maintain your personal level of security and then seek out the smallest, lightest, highest-quality manifestation of that gear.

Don't be overly influenced by "lightweight gear freaks", but, also, for your own safety, avoid the "everything but the kitchen sink syndrome". Explore the equipment links below, then decide what makes you feel safe and comfortable, then start out with that as a baseline. As you become more experienced, you will discover that your gear configurations will evolve toward more efficiency and, hopefully, lighter weight. Remember, though, as you determine your gear needs, a too-large pack makes a person more vulnerable to falling down as well as to back, leg, knee, and foot injuries, and a too-small pack may compromise your personal security, due to lack of necessary gear. Read carefully the "CREED" section in the "Tips" link below.

**Equipment**

* **Strive for a Simple, Light Load** on your back. A light, but efficient load, will allow you to have a more enjoyable time with energy left over to celebrate when you reach your destination. For additional packlight philosophy, go here:
* **Know Your Requirements**. Before embarking on a gear shopping trip, have your pockets full of information related to:
	+ What kind of trips you will be taking:
		- how many days ?
		- how many miles ?
		- in what kind of terrain--on trail, off trail ?
		- at what altitude--desert, subalpine, alpine ?
		- in what seasons--Summer, 3-Season, 4-Season
		- in what kind of weather ?
		- how many people--solo, 2-person, etc. ?
	+ Do you sleep hot or cold ?
	+ Do you rock & roll in your sleep ?
	+ Are you a heavy breather, in your sleep ?
	+ What's your torso measurement ?--(see gear planning link, below)
	+ What side of the bed do you get out of in the morning. (you'll probably want to get out of your sleeping bag on that side, also).
	+ Do you have weak hips or weak lumbar ? (most packs put majority of weight on hips--some put more weight on the lumbar region (my personal preference).

This information will be critical when talking tents, boots, clothes, backpacks, sleeping bags, and virtually all the other gear items you will need--some of which you don't even know you need, yet. Trust me, an experienced salesperson will ask about and use every one of the info items I mentioned above, and probably more.

* When trying on hiking shoes and boots, take the socks you would wear during your backcountry adventures--as well as orthopedic inserts (orthodics). If you don't know what socks you'll be wearing, then that's where you should start. If you change thickness and design of sock subsequent to purchase, that good boot fit you work hard for, may be history.
* Shop at stores with reputable, experienced salespeople. This may surprise you, but my advise, if you are just starting out -- UNLESS YOU KNOW EXACTLY WHAT YOU NEED -- is to stay away from outdoor chain stores (you know who they are)!

My suggestion is to go to shops like Marmot, Wilderness Experience, Feathered Friends--all stores I frequent in my part of the world--and get help you can count on from experienced backcountry folks. Marmot and Feathered Friends also do mail order. Check your local area for the best outdoor shops. If the chain stores are all you have, then make darn sure you've done your homework--for your own good--and get a second and third opinion.

More and more I do my shopping over the internet. A lot of good quality shops on the net - for example, [The Lightweight Gear shop](http://www.litebackpacker.com" \t "_blank). This is a great alternative especially if you have a good idea of your required specifications. Even it you don't, many online shops will work with you to ensure you get what you really need.

* **Plan your gear inventory & purchases.** Using the information that you just supplied yourself--from above, as well as knowledge you gain from studying the following four links and links on the *"Gear Links"* page--identify, as much as you can, the types and specifications of the gear you desire. This approach to acquiring gear will reduce your (1) dependence on sales people to figure out what you need and, (2) subsequent need to buy, sell, & buy gear multiple times before you get what you actually, really need.
* **Consider three or four wheel drive:**
* **Strive to Lighten Your Load !** You don't need to be a "lightweight gear" neurotic to know that this makes sense. Here's some old methods and some new innovations intended to lighten the load. If you don't already know, every ounce is heavy, therefore, every ounce removed from your back, lightens your load. You might want to explore these pages before purchasing gear--there's some good weight-reduction to be had via acquisition of specific kinds of gear.
* **Use a Checklist**
* **Know Your Gear**. Acquiring the right gear is the first step. You must then gain a keen knowledge of how each piece of gear works, how it is assembled, and how to maintain it.

Practice using each gear item, before you leave home. Visualize having to repair each item in the field (and be prepared to do so). The more you know about your gear and the more comfortable you are with it, the more secure and comfortable you will be while on the trail.

**Where to Go ?**

Backcountry shops, bookstores, libraries all carry books that will provide information about hikes in your area, as well as in other areas. Also, a great way to learn about hikes is to join a hiking club. Not only will you learn about available hikes, but you'll meet people with the same interests as you. The internet is a good place to look--State Parks, National Forests, etc.

**On The Trail**

**Understand the Backcountry Culture**.

* Study the information found at the link, below. It will give you a good baseline of knowledge & tips for what is generally-accepted, ethical behavior & practices, in the backcountry, as well as provide helpful tips related to campsites, sanitation, pet dogs, and so on.

**Walking on the Trail**.

* **Maintain an efficient posture**, while walking on the trail. First of all, you need to make sure your pack is packed correctly-- (the *Gear Planning & Purchasing* page provides instruction on how to properly load a pack). Assuming your pack is relatively lightweight and properly packed, you should be able to walk only slightly leaning forward under the weight of the pack. Try to maintain the posture you would normally have while walking--head up; shoulders back; relaxed, swinging arms--in order to reduce muscle strain and make you a more efficient backpacker.
* **Discover Your Hiking Pace !** This is very important. Everyone has a preferred pace, and to deviate from that pace is somewhat annoying, uncomfortable, and even injury producing. When first starting out, don't concentrate too much on your stride and pace, just do what comes naturally and comfortably. It's important that you hike at your own pace to maintain that comfort level. You're out there to have fun and achieve enjoyment, not to keep up with someone else. If you hike with a group--most groups, if properly guided, will allow for this, and even encourage this. Eventually, you may want to concentrate on quickening your pace or even slowing down. Over time, I have learned to comfortably quicken my pace or slow my pace, depending on the situation.
* **Finding A Hiking Partner.** You may have visions of yourself and your spouse or best friend truckin up a storm thru the mountains. If your goal is to hike with your spouse and/or best friend--and still be friends when its all over--then you must conform to the pace of the slowest person. That's the potentially annoying, uncomfortable part I previously mentioned. If your goal is to hike at your own pace, for as far and as long as you like, you, most likely, will need to seek out a hiking partner with similar, if not identical tendancies. If that's your wife or best friend, then lucky you. Hiking partners can be found thru hiking club activities & newsletters, acquaintances, and even over backpacking bulletin boards like this one:
* **Watch where you're going.** Especially nowadays, many trails are in a bad way--roots, ruts, wash-outs, rocks. Keep your eyes and mind on the tread in front of you. Plan each step, carefully. Your eyes, mind, and foot placement must be in coordination with your feet. That is why its important to travel at your naturally comfortable pace. If you go too fast, your foot placement may become uncoordinated Accidents can occur--and do. Even on well-kept trails, footing can be treacherous when wet, especially. Be careful going downhill on wet tread. Use your walking stick for added support and stability (see *The Walking Stick*) page.

**Stay healthy.**

* **Drink much, eat much, and maintain a stable body heat**, as previously mentioned. When you plan your daily mileage, take into consideration water, fuel, & clothes breaks. Also take into consideraton the terrain you'll be traveling in and make the appropriate clothing and supplies readily available in or on your pack. If the garments, sunscreen, food, etc. are readily available, you'll be more likely to stop and use them-- as opposed to the hassle of digging around in the pack looking for things.
* **Rest** occasionally. Whenever you or someone in your group gets weary, it's important to stop and rest. It's actually best if you rest before anyone gets weary. A tired backpacker, is a backpacker who is more prone to injury. When planning your daily mileage, be flexible. Be prepared to stop for the day when you and/or your group gets weary and wants to stop, rather that pushing on to a pre-determined goal and risk someone getting injured.
* **Protect yourself from sunburn**. Carry and use hats with wide brims which protect the eyes and face and with shrouds that cover ears and neck. Frequently apply sunblock--at least, spf 15-- in the mountains, try spf 25 or higher.
* **Prevent & treat blisters**. If your boots fit correctly, you'll be less likely to encounter blisters. A good boot fit will be snug in the heel area and long enough that toes don't jam up against the front of the boot when going downhill. Also, if you're wearing socks like Thorlo Hiking, with padded bottoms. Those are the three areas in which blisters occur the most. If you have a history of blisters, then apply moleskin or 2nd skin or whatever to that area prior to hitting the trail. If already on the trail, stop immediately upon feeling a "hot" spot. When you feel the hot spot, the blister is already forming. If you stop right away and apply moleskin to the reddened area, you'll most likely have little more that a sore spot for a couple days. If you don't stop and take care of it, it could develop into a condition too painful to walk on.

If a full-blown blister does occur, you can drain it by lancing it at its base and then applying first, an antibacterial gel, and second, a cushioned, adhesive bandage. Another solution, is to leave it, as is, undrained, and cover it as follows: cut a section of 1/8" thick molefoam which is larger than the blister by 1/2" on each side. Then cut a hole in the middle of the molefoam a little larger than the blister and place it over the blister. Next, Cut a piece of moleskin the same size as the molefoam and place over the top of the molefoam. You've now encased and protected the blister from further abrasion. You should be able to continue on your journey.

* **Bugs**. You'll have to deal with bugs, one way or another. Especially biting black flies and mosquitoes. There are many bug-off solutions--juices, creams, gels, sprays--most of which are DEET based. You can also purchase bug-net clothes. This is probably the main reason that I carry a tent. If there were no bugs in the world, I'd be happy carrying, at most, a bivy for many of the outings I go on. There's no magic solution, you just have to discover a way to deal with it.
* **Ticks and Lyme disease**. Lyme disease has become a serious problem and one of the main ways it is transmitted to humans is by Ticks (Mice also, so stay away from them, as well). In tick country, make sure feet, legs, arms are covered with clothing. Wear light-colored clothing so ticks will be more visible. Check often for ticks on clothes and in hair and on exposed skin. If you do find a tick embedded in your skin the recommendation is to remove it immediately by pinching your skin with special tick-removing tweezers just below the head of the tick and lift the tick straight up and out. It is very important to not squeeze or twist the tick during the removal process since this can cause the tick to regurgitate germs into the wound. Also, do not try to burn or otherwise harrass the tick because it may burrow deeper. After removal, apply first aid to the wound, and it wouldn't hurt to save the speciman and take it and yourself to see a physician, upon your return to civilization.

**Stay Found.**

* **Carry & know how to use map & compass**. Even if you always stay on the trail and have no intentions of leaving it, it is important to carry a map of the terrain that you're in. For a brief moment, you may not be paying attention or may get distracted and, consequently, take an incorrect fork in the trail, the tread of which gradually fades away. You turn around and see no trail--you're disoriented and probably lost. In my opinion, the map is the most important tool you have because even if you don't know the intricacies of using a compass, the map (assuming you know how to read it) will allow you get re-oriented. You can climb to a high place pick out some outstanding land features then find them on the map (or vice versa) in order to approximate where you're at. With this knowledge you'll have an easier time finding your way back to the trail. If you know how to read the compass--which you should-- you'll have an even better chance of finding your way back. No matter how careful you are, if you're out there long enough it will happen to you, too. Be prepared.
* **Be familiar with & Pay attention to, the terrain you're in**. Before you venture into an area, become familiar with the terrain by studying your map. As you travel, pay attention, stay aware of where you are--don't just blindly follow the trail. Periodically, stop, turn around and look behind you. See if you can approximate where you're at on the map. Stay alert, don't space out, and you'll stay found.
* **Stay on the trail**. Use your map to become familiar with the trail, including intersections with other trails. It's not uncommon to come across side trails which are well traveled by wild animals, climbers, fisherman, and soon-to-be-lost hikers. Again, pay attention to the map, pay attention to the trail. Stay on the right one. If you have a question about which way to go, refer to your present location on the map, pull out your compass, take a bearing and follow the appropriate trail. Not all trails are well-defined, be prepared to use map, compass, and common sense to validate the direction you travel.
* **Keep track of Each Other**. If in a group, the rule of thumb is don't lose sight of the person in front of and/or behind you. If each person has this attitude and practice, persons will have a better chance of staying found; those who become lost can be retrieved before they become "too lost"; and injured individuals can be quickly located and administered to.
* **If lost, don't panic**. Once you realize that you're lost, stay calm, relax, and evaluate the situation. Stay where you are at, continuing on may just take you farther from help. Use your emergency whistle to signal distress, or if you don't have your whistle, make loud noise however you can. Get to the highest place in the immediate area, and using your basic map and compass skills approximate your location, and begin working your way back to the trail, continuing to make noise, until you are found, again.

**Hiking Year-Around**

Hiking & Backpacking is really a four season activity. My observation is that there are three seasonal categories of backpackers--those that go out only in Summer; those that go out in three-seasons; and those that go out all year around. A person can backpack in the same locations, for the better part of three seasons, with pretty much the same gear (see *Seasonal Gear Lists link* above).

In Winter and, potentially, in early Spring and late Fall, there are other considerations in terms of gear, technique, and places to go (and not to go).

Whenever snow and ice is present, a hiker/backpacker needs, at a minium, an ice axe and the knowledge of how to use it. From late Fall, through much of the Winter, snowshoes are a necessity. From late Winter thru early Summer, the snow pack generally hardens and snowshoes are no longer required, but the ice axe and sturdy boots continue to be a requirement. One needs to know how to kick or chop steps in hard snow (sorry, running shoes can't do this), how to self arrest with the axe (stop yourself from sliding down the mountain), and, for your own fun, how to glissade (sliding down the mountain on your bottom using the ice axe as a rudder/brake). If you want to become a successful year-round backpacker, you must become skilled using snowshoes and ice-axe.

#### Backpacks

INTERNAL vs. EXTERNAL FRAME (some features):

 External Frame:

* rigid frame upon which pockets, pack bag, and suspension are attached.
* typically has lots of pockets for easy gear distribution and organization.
* good for carrying heavy loads, on-trails only, and on relatively easy terrain.
* more open space between frame and person's back for better ventilation than Internal Frame.
* dimensions of fully loaded backpack has wider, taller, less-stable profile than Internal Frame backpacks--very high center of gravity--(don't even try to walk under tree limbs or you could end up flat on your back).

 Internal Frame:

* framing is an integral component integrated with suspension and pack bag.
* pack designed to fit snugly and comfortably against a person's own profile.
* very stable and functional off-trail as well as on-trail.
* snug fit against the body allows for better balance and maneuverability on rough terrain.
* narrow profile allows flexibility to venture into tight places.
* tends to be warmer against the back--ventilation not as good as external frame.
* typically, lack of pockets for organizing gear.

------------------------------------------------------
**NOTE:** From here on, I concentrate on Internal-Frame backpacks only. I am fully converted to Internal Frame, as are the rest of my family. I, personally, feel that Internals provide me more value for the dollar, in that they are better suited for traveling off-trail (alpine scrambling, cragging, climbing, skiing, snowshoeing, and so on). That's not to say externals can't be used for those activities, it's just that, for me, externals don't provide the snug, form-fit, narrow profile that internals do. That's my preference. There are other good resources on the web where you can find out more info on external-frame backpacks. Here's some info on internals:

SOME THINGS TO LOOK FOR (in an Internal Frame):

* Double bottom with differentially cut inside layer--puts weight on inside layer, significantly prolongs life of pack.
* Slim profile, if going off-trail.
* Straps (removable) and loops for transporting sleeping pads, ice tools, etc.
* Compression straps to enable a slim profile and stable load and for carrying poles, wands, etc.
* Load-lifter straps to pull the load off the top of your shoulders.
* A belt that cups over your hip bones, so the pack's weight is evenly distributed over the entire belt surface and not just on the part of the belt that rests on your hip bone.
* Preferably, double zippers--in case one blows out, you won't lose functionality.
* Head clearance. You might want to look up (without hitting your head) to see where you are going.

FITTING TIPS:

First, a brief word about fitting a pack. As with boots, proper fit is the key with a backpack. The weight of a pack is secondary, since a well-designed, heavier backpack *may* give you a more comfortable ride than a much lighter pack carrying the same load.

------------------------------------------------------
**NOTE:** Although weight may be secondary, it is nonetheless very important. For example, don't automatically settle for a 7 pound Dana Terraplane when you mostly carry 30-40 pounds. Firstly, understand your needs and how you're going to use this thing. There are an increasing number of lightweight packs coming to the marketplace which might serve you better. I, for example, loved my Terraplane--I sold it, recently--but I've cut the weight of my gear to the point that I just don't need it. My desire is to find the perfect 2 1/2 to 3 pound, 4000 cubic inch pack that will give me a great ride with 35 pounds of gear in it--more than enough for a week. Remember, if your pack weighs 6 to 8 pounds before you put anything in it, you can forget "lightweight".
------------------------------------------------------

 Know your torso length. Lack of this knowledge often causes an uncomfortable realization, after the fact, that the pack doesn't fit correctly. The reason you must measure your torso, rather than guess what size pack you should have, based on your ability or size, can be illustrated as follows:

A large, tall person can have a short torso (and long legs) thus requiring a smaller pack. A shorter, smaller person can have a longer torso (and shorter legs-like me) and require a larger pack. All pack makers design their packs with your torso in mind. Thus, measure your torso, preferably before shopping, so you will have that knowledge in your pocket. This will, hopefully, eliminate total dependence on outdoor-shop salespeople--who sometimes make mistakes !

OK. The torso. To determine your torso size, ask a friend or family member to help you, if possible. You will need a tape measure or tailor's tape to measure along your back from the seventh vertabrae--the largest bump on the back of your neck, with your head forward--to a point on your lower back which is hortozontal with the top of your hipbones.

If you find that your torso is on the border between two sizes, my experience is to go with the larger size. For example, if your torso is 18 and a small size is torso 16-18, and a medium size is 18-20, go with the medium because you'll have more room to make adjustments. Most good packs allow for that.

 The rest of the fitting you will need to do, although important, has more to do with what feels good. It seems like I'm always getting a hipbelt or shoulder harness that feels right to me but doesn't jibe with the manufacturer's fitting instructions. But a couple of things you should look for:

 The hipbelt should wrap around your hips, not your waist (or stomach) and the lumbar pad should be centered properly into your lumbar area. You want a significant amount of the pack's weight on your hips (and, if you're like me, on the lumbar region). A good way to do that is to make sure your hipbone is centered under your belt (and the lumbar pad centered and pressing firmly into you lower back).

 Get a shoulder harness that doesn't get in the way when you swing your arms or have buckles that pinch your skin.

 Anyway, the key for any pack is to try it out with plenty of weight in it. All outdoor shops should have weights and stuffing for testing packs. Fill up the pack with weight approximate to that you would be be carrying on the trail. Try to distribute the weight in the pack as best you can (I know it's hard because the store's usually have 10 to 20 pound sacks of lead shot or BB's and wads of paper, but try your best). After you have achieved a good fit (and, hopefully, the salesperson concurs) take the pack for a test drive, as follows:

* Bend over and touch your toes. Sway, dramatically, from side to side. Jump up and down. Throughout these manuevers, the pack should stick to you like glue. It should not feel sloppy, nor, if it's properly packed, should it throw you off balance.
* Walk around the store many times.
* Walk up and down stairs. Walk out in the parking lot, thru the nearby park, or wherever--assuming it's okay with the salesperson.
* Take the pack off, loosen all the straps, put the pack back on, tighten all the straps, and walk around some more.
* Concentrate on ensuring yourself that the weight is being distributed evenly. You shouldn't feel excess weight in any one spot, unless of course you want it that way. A good pack will provide flexibility to shift the weight around via adjustments. Fiddle around with the adjustments. Shift weight to your shoulders, then to your hips. Each should feel comfortable, because on the trail you will use different adjustments going uphill than you will downhill. Also, when your shoulders get tired on a long haul, you may want to shift more weight to your lower back and hips. Experiment.
* Once you've decided on purchasing a pack, ask if you can return the pack, if upon further testing and experimenting at home with your own gear loaded in it, you decide it's not the right pack, after all.
* I buy most all my packs at Marmot, who allow you to purchase it, then take it home and try it out with your gear or whatever--keeping it clean, of course--so you can have time to decide if it really is the pack for you. If the pack has interchangable parts, Marmot will allow you to bring back parts for exchange--if you don't like the way the hipbelt is wrapping around you, take it back and exchange it. Look for that kind of professional support because it makes finding the right gear a whole lot easier. Okay, I diverge, but hopefully this will help somebody.

PACKING TIPS:

 Unless you have a bombproof, leakproof pack, organize gear in waterproof stuff sacks or heavy duty zip-loc freezer bags. Color-coded stuff sacks make it easy to locate gear items and is an especially useful way of keeping track of smaller items.

 Pack tent on top where you can get to it fast in a sudden storm without pulling out any of the rest of your gear. Also, pack items such as raingear, water, snacks, sunscreen/sunglasses, bug juice, camera, binocs, and other quick access gear items, in an easily accessible location--right next to side zips, in the pack lid pocket, a side pocket, or on top of the pack, along with the tent.

 If your pack doesn't have a framesheet between you and your gear, make sure you pack sharp and hard objects away from your back, preferably toward the outside of the pack. Items like stove, cookpots, water & fuel bottles, and tent poles & pegs.

 Keep fuel (especially white gas) containers away from food and cooking gear. Place fuel containers in heavy duty gallon zip-loc freezer bags and pack upright.

 Strive for a horizontal distribution of weight, so that one side of the pack isn't heavier than the other. You should keep the weight centered so that you don't lose your balance or hurt your back.

 Slimmer is better. Cinch down the pack's compression straps as you pack to help ensure a slim pack profile. As it becomes apparent that you will need more space loosen the compression straps, accordingly. When all packed, cinch down all compression straps and load stabilizers, in order to ensure a secure, stable load. Remember, the fatter your pack becomes, the farther you must lean forward to bring the pack's center of gravity back over your hips--fat packs can result in sore backs !

 If mainly on the trail, especially for long distance treks, pack the heavier items in the upper portion of the pack, in order to create a higher center of gravity. This centers the pack weight above your body where it's easier to carry (on easy to moderate tread).

 Men, if going offtrail, pack heavier items close to the back in the middle portion of the pack. This will result in better stability when boulder hopping, post-holing, or whatever.

 Women naturally have a lower center of gravity than men, thus may want to pack as if going off trail--heavier items a little lower in the pack-- on all occasions. I know my daughter prefers to pack the same for all occasions.

#### Binoculars

MAGNIFYING POWER & OBJECTIVE LENS:

There are two numbers which define the functionality
of Binoculars (e.g., 8 x 20).

* The first number is magnification--a larger number means greater magnifying power.
* The second number is the diameter of the objective lenses--the lenses farthest from the eyes.
* Dividing the second number by the magnification number results in the exit pupil, which is the diameter of the shaft of light that reaches your eyes. The larger the exit pupil is, the easier it is for a person to maintain a full image as their hands move. A larger exit pupil also lets in more light which creates a brighter image, which is especially important at dusk or dawn. Thus, an 8 x 20 binoc would have a 2.5mm exit pupil. 4mm or higher is recommended for low light situations. Another number associated with binocs is the field of view. This number (e.g., 359 feet) indicates the width of the area you would be able to view in a single glance, 1000 yards from where you stand.

OTHER ATTRIBUTES TO LOOK FOR:

There are other attributes to look for.

* If you wear eyeglasses, look for binocs with eyeglass cups which allow you to easily look thru them without removing your glasses.
* If water resistence is important, seek out binocs with internal and external rubber seals. For shock absorbtion, look for "rubber armor".
* All the binocs should have convenient focusing mechanisms. Center focusing is the most common and convenient. You should be able to focus one eye using the center focus dial, then focus the other eye using the separate focusing dial located on that eye's eyepiece. Once both eyes are focused, use the center dial to fine tune subsequent sightings.

#### Boots

WHAT IS THE BEST BOOT ?:

Boots are like backpacks--both must fit properly, or else. When LaSportiva came out with their Makalu, I was very interested in the design, and the good reviews from others made me decide to get a pair. I tried on several pair, in three different stores, but they would not fit my feet. Major bummer. But that's the way it is. When people ask what's the best boot ? The best answer is twofold (1) the one that meets your usage requirements *and* (2) "the one that fits". I ended up getting a pair of Dolomite Ortles G. A better fit isn't possible. They are full-grain leather, GTX-lined, crampon-compatible, light-weight mountaineering boots which didn't require any break-in--no blisters, not one have I received wearing those boots.

THE BOOT LIFE-CYCLE:

There are some good articles on boot shopping, fitting, and maintainance. Backpacker Magazine usually has a good section in their annual Gear Guide each March. I'll just mention a few of the critical issues related to the "boot life-cycle".

 Research & Ask Questions--in order to get a boot appropriate for your intended usage.

 Get Help--from a reputable outdoor shop with experienced people.

 Always try on boots with the sock combination(s) you actually use on the trail.

 Look for a snug fit especially around the heel where slop will cause major blisters.

 Test the boots vigorously on a steep downhill plane to ensure your toes don't touch--most serious boot shops have such a sloped device. A good quick study: you should be able to insert two fingers behind your heel, with the boot laced loosely and your foot as far forward in the boot as possible.

 Try on as many boots as possible. DON'T buy the first pair unless you're very experienced and are quite sure. There are some boots that feel good, but there are others that feel JUST RIGHT !

 Wear the boots around the store for awhile. Walk up and down stairs. Load up a backpack to see how they feel under a load.

 Keep in mind there are helpful products to aid in the quest for a good fit. Often times just changing the foot bed makes the difference. Again, an experienced salesperson can get the job done for you.

 Once you purchase boots, condition and waterproof them before using, and frequently thereafter. For leather boots, depending on the design, I may inject some SeamGrip into seams between layers of leather to ensure waterproofing. Regardless of boot type, however, I always apply two or three coatings of Nikwax to my boots, allowing each coat to dry thoroughly before applying the next. I use an old toothbrush to get the paste down into the seams.

 Don't forget to take some moleskin, just in case !

#### Cookware

ABOUT THE POT MATERIALS:

Although there are several materials that are used in outdoor cookware, I'll concentrate on the materials that are currently being used in the leading backpacking cookware. In other words, I won't be talking about copper, enamel, or castiron. The materials of note in this section are aluminum, stainless steel, and titanium.

**ALUMINUM**
Aluminum (the uncoated variety), once the mainstay lightweight cookware for backpacking, has gone out of favor for many folks, for several reasons. One is because the aluminum oxidizes, over time, and is thought to be connected to health problems, including alzheimer's disease. In addition, aluminum is not very resilient in that it dents and deforms, very easily. If you use aluminum pots for cooking, rather than just boiling water, be prepared to seek out some fine mud & gravel, because your food will probably stick to the metal.

**STAINLESS STEEL**
Another reason uncoated aluminum has lost popularity is because of the invent of ultra-lightweight stainless steel cookware. Stainless steel cookware is strong and durable. It does not however, distribute heat as evenly as aluminum.

**NON-STICK COATED ALUMINUM**
Non-stick, coated aluminum cookware is becoming popular in the backpacking ranks--for example, Traveling Light's Evolution Cookware. Although heavier than uncoated aluminum, it is comparable to lightweight stainless steel, is durable, and has good heat distribution.

**TITANIUM**
Can't get any lighter than this. It is extremely resilient and durable. Because the metal is so thin, it also does an adequate job of evenly distributing heat. It weighs about 1/2 of what the lightweight stainless steel and coated aluminum pots weigh.

**ATTRIBUTES TO LOOK FOR:**

Look for the following attributes when shopping for cook pots:

ROUNDED BOTTOM EDGES:
For two reasons, (1) the pots are easier to keep clean--food stuff doesn't get caught in seams where the sides meet the bottom section and (2) flames/heat from your stove can more easily move up the sides of the pot.

BLACKENED BOTTOMS & SIDES:
Most pots do not come blackened, but over time may become that way, especially if you use them in an open fire. Of all the pots in the "kitchen inventory" section of my "gear closet", my SIGG Inoxal pots are the only ones that actually came with a black outer surface. However, no matter, I always paint my pots with flat-black stove paint, as soon as I get them. I recently did this with my Evernew Titanium pots. The black surface absorbs and distributes heat faster than a shiny surface.

TIGHT-FITTING LID:
A tight-fitting lid is critical in order to maximize the efficiency of your stove. If you have a tight-fitting lid, the contents of the pot will heat faster and, thus, you'll consume less stove fuel. Also, the contents will stay heated for a longer period of time.

COMPACTNESS:
Look for pots that require a minimum of space in your pack. Handles that fold or else a separate pot-gripper handle which is storable inside the pot. If you're carrying more than one pot, look for pots that nest into one another.

LIPPED TOP RIM:
This is especially important if you are using a separate pot-gripper handle. The gripper-handle attaches to the pot underneath this rim for security and stability. Otherwise, well, your gripper-handle could easily slip off your pot and your soup would be in your lap.

LIGHT WEIGHT:
There's quite a number of good pots available, nowadays. Look for the lightest manifestation which meets your requirement.

**COOKWARE KIT CONTENTS:**

A person could get quite carried away here. This is, however, *The Lightweight Backpacker*, so I'll be brief.

SMALL ULTRALIGHT CARRYING SACK:
I like mesh, at least on one side, so the contents can breathe, just in case things like damp spoons and such have a chance to fully dry out.

CONDIMENTS:
Your choice--powdered garlic, onion, parsley, cayenne, other herbs. Carry each in a small, plastic container (you can buy, at REI and other outdoor shops, containers like film canisters but about 1/2 the size). You can also carry them in small zip-loc freezer bags, but be careful of holes developing in those bags, especially over the duration of a multi-day trip.
NOTE: I don't use film canisters because I was told that residual chemicals typically remain in those canisters long after the film is removed. I haven't yet taken the time to validate that information, but, in the meantime, I don't use them.

SPOON:
Choose your own utensils, however, I see need for only one lexan soup spoon (with 1/3 of the handle sawed off--and sharp edges sanded down).

OPTIONAL: COFFEE FILTERS & LIGHTWEIGHT PLASTIC-CONE FILTER HOLDER,
if you are a coffee drinker and carry coffee grounds into the woods. Carry your grounds inside heavy-duty zip-loc freezer bags or small plastic containers with secure, tight-fitting lids. An option, on the other hand, is to leave the filters and plastic cone at home and take along "coffee-bags" that you steep in your cup like tea. A whole lot lighter and less messy.

OPTIONAL: SMALL SCRUBBER SPONGE:
This may be prudent if you have cookware that has a protective coating which could be compromised by rubbing mud and gravel over it. Otherwise, I personally, see no need for the scrubber sponge--I use mud and fine gravel to keep my pot, spoon, water bottles, and cup clean.

OPTIONAL: INSULATED MUG with LID:
Optional during the 3-season. Very important piece of gear, though, in the Winter. In the 3-seasons, if you do carry the insulated mug, leave the lid at home and save an ounce and a half.

OPTIONAL: PLASTIC BOWL:
For solo packers, eat out of your pot. If two packers, one will need a bowl.

####

#### Food

PLANNING YOUR FOOD ALLOWANCE:

In general, when planning your "lightweight" trip, figure about 2 lbs of food per day, more or less, depending on your needs, the type of food you will carry, the weather conditions (cooler weather necessitates more food - possibly with higher fat content - to keep you warm), and the length of time you'll be out there.

Typically, for short duration outings - 6 days or less - you can get by with less food. For longer duration treks - say a week or more - like doing the AT or PCT - you may need progressively more nourishment. You may be able to get by with 1 1/4 pounds per day for awhile, but find you require 2 1/4 pounds within a couple of weeks.

Before embarking on a long backcountry expedition, experiment in your kitchen, on overnight hikes, and on multi-day hikes. For you, more strenuous hikes may require more food. It's good to understand your needs before leaving on a ten day hike. I learned that lesson the hard way.

Carry foods that require little or no cooking. It is important, however, to have at least one hot meal per day, preferably in the evening. A hot meal will help you keep warmer on cold nights, help you sleep more soundly and, in general, help maintain your psychological and physiological well-being.

For your hot meals, try to bring food that can be prepared in its own package (like many of the freeze-dried meals on the market) or remove them from their own packaging and put into heavy-duty freezer bags which can tolerate boiling water. Also, when measuring out meals, err on the "too much" side. You'll probably get hungry enough to eat it all.

Important rules to remember: Carry extra food for emergencies, at a minimum, one good, high-fat-content meal. Also, when exhausted after a hard day's climb, make yourself eat, even though you are "too tired". Your body really needs the nourishment, no matter what your mind says.

KEEP IT LIGHT & SIMPLE:

I like to keep it light and simple, with the convenience of no dirty pots. I don't like leaving food scraps in streams, lakes, or on the ground. Anyway, don't get me wrong, nothing against those of us that like creative cooking in the outdoors. I've just found a method that works best for me. Maybe I'm lazy.

Anyway, I like a lot of dried soups and cereals, measuring out just enough for each meal and putting it into small zip-loc freezer bags. All I have to do is boil water and pour it into the freezer bag, close the bag, which retains heat rather well, and let sit for several minutes before feasting. I also really enjoy several Mountain House freeze-dried meals--Lasagna, Spaghetti, Pasta Primavera, Chili Mac w/Beef--and deserts like dried strawberries, yum !

VITAMIN & MINERAL SUPPLEMENTS:

Supplemental vitamins and minerals are very important for our health and well-being in the woods, especially, if we're out for a long duration. I carry two to four packets of E-mer'gen-C Vitamin & Mineral powder per each day that I will be out. I take, at least, one in the morning and one in the afternoon, mixed with water. It is rich in vitamin C (potassium ascorbate), has 8 times more potassium--200 mg--than gatorade, 25 different electrolytes, 1000 mg of Vitamin C, all the B vitamins, and many minerals, in each packet. Yet, each packet weighs only 1/5th of an ounce. It makes a difference for me. Helps keep me energetic with a positive attitude !

ONE PERSON'S METHOD:

My method requires boiling one quart of water in the morning for oatmeal, cereal, or granola with fruit, and a 12 ounce cup of delicious Caffe d' Amore cappuccino (purchased packets at REI) and/or Singlebrew gourmet coffee (from a large tea-style bag). I also boil one quart of water in the evening for an instant-soup or freeze-dried feast along with a 12 ounce cup of licorice-root tea, other herbal concoction, or hot cocoa. I don't use a stove during the day but take a number of snack type foods to eat.

#### Outdoor Clothing

YOUR LAYERING SYSTEM IS THE KEY:

The key to being comfortable in the wilderness, I think, is an effective layering system. "Layering" refers to dressing in muliple, relatively thin layers of clothing rather than one or two thick, heavy layers. Layering, in this way, provides more versatility over a wider range of temperature and activity conditions. Multiple, thinner layers also provide more warmth because there is air space between each layer which functions similar to "loft" in a sleeping bag. Air is trapped between layers, is warmed by your body heat, and, thus, provides added insulation. Also, and very important to a lightweight backpacker, is that multiple, thinner layers usually require less pack space and may even weigh less.

I use a four-layer system, year-around. The system that I carry the most and weights are:

Inner Layer: Patagonia Lightwt Underwear (top & bottom), 13 oz

Mid Layers: Patagonia Puffball Vest, 8 oz

 Marmot Windbloc, Microfleece Jacket, 15 oz

Outer Layer: Marmot Stormlight Parka, 18 oz

 Marmot Cloudlight Pants, 10 oz

**The Inner Layer**--in the Summer, this is lightweight underwear made of capilene/polypropylene which is worn next to the skin. It wicks moisture away from the skin, keeping the skin dry and warm. It drys very quickly, and insulates even when wet. In the other seasons, the thickness of my Inner Layer varies depending on environmental conditions and planned activities--either lightweight, midweight or expedition-weight underwear.

**The Mid Layer(s)**--generally speaking, for me, this is a windproof fleece jacket with pit-zips and pack pockets. I also carry a lightweight microloft vest to wear under the fleece jacket as an emergency layer when weather conditions change unexpectedly--it happens alot ! I have worn all four layers in the middle of August. Most of my activity is in the Cascades between 4000' and 9000', so I must be ready for the worst, all year around.

The purpose of the mid-layers is to provide insulation adequate to keep me warm in whatever conditions I find myself. Your mid-layer may consist of one, two, or even three garments, depending on thickness of garments, the range of activities you're engaged in, and the local environment you're travelling in.

**The Outer Layer**--its primary purpose is to protect from wind, rain, & snow. Thus, it must be waterproof and windproof. I use three-layer Gore-Tex parka & pants. The parka has pack pockets, pit-zips and two-way front zipper so that I can wear it with my pack and have venting options without removing it (and my pack). On day hikes with moderate to good weather conditions, I carry lighter, windproof, water resistant, Gore Activent parka and pants. They function adequately for wind protection and the occasional rain shower.

In addition to waterproof (or water resistant), and windproof requirements, these garments must also be breathable. That is, moisture which builds up under the garment has to be able to escape or else you will get soaked from within by your own sweat. Features like pit zips, two-way front zips and venting pack pockets help a lot, but the material itself must provide breathability, as well. Garment made of materials like activent breathe many times better than Gore-Tex and, thus, are better suited for highly aeorobic activities. Materials like Gore-Tex are more waterproof and are better suited for inclement weather. The important point here is that regardless of the material you select it must be breathable, waterproof/water resistant, and windproof !

**Cotton, Wool, Fleece, and Tips:**

Cotton is great for warm-weather conditions, it keeps the skin cool and doesn't insulate. However, for mountain travel, cotton is not recommended as a layering component. Cotton absorbs moisture, keeps it next to the skin & drys very slowly. Thus, heat loss and chills can result. In conditions where wind and cold are a factor, do not use cotton as part of your layering system--especially the inner layer !

Although wool retains its insulating value when soggy wet, it is, nonetheless, soggy wet *(and heavy)*, and takes considerable time to dry out. Thus, I'm a strong advocate of polyester fleece.

Although fleece garments may look alike, there are subtle differences which can significantly affect your comfort while in the woods. Fleece garments for use in the backcountry should not have, IMHO, linings made of nylon. Avoid it, if you can. Many makers line the cuffs, bottom hem, pockets, and/or the inner lining with nylon. Fleece, for all practical purposes, does not absorb moisture. Nylon does, which can make your body cold. It doesn't have to be freezing in the mountains for a person to get hypothermia. Ideally, look for fleece garments that have linings of lycra. It doesn't absorb moisture and is somewhat elastic, allowing a snug fit, which helps seal-out cold air and seal-in warm air. Also, when shopping for a jacket, look for a wind flap behind the zipper and also pit zips and pack pockets, so you can let heat escape w/o undressing.

HIGH-TECH LIGHTWEIGHT MATERIALS:

In the process of developing a layering system that works best for you, you'll probably go thru numerous iterations before you achieve that ideal balance between comfort, flexibility, bulk, and weight. Although there are many lightweight materials used in outdoor gear these days, here are a few buzzwords to look for which relate to small, light, warm, waterproof, comfortable layering:

 CAPILENE UNDERWEAR (Patagonia's version of fleece underwear available in silkweight, and light,medium & expedition-weight fleece)

 MICRO-FLEECE (warmer, lighter, & more wind resistant than regular fleece--mainly found in jackets)

 DRYLOFT 130 (lightest waterproof / windproof material available--ideal for down sleeping bags & garments);

 1.1 RIPSTOP GORETEX (ideal for rain gear & bivy sacks);

 MICROLOFT ( a synthetic insulation that is lighter, warmer, and more compact than fleece)

 700 to 800 FILL GOOSE DOWN (more durable, lasts longer, more warmth per weight than 450 to 650 fill down)

 if synthetic sleeping bags interest you, LITE LOFT is more compact, lighter, and water resistant than other synthetic materials--*but may be less durable*).

#### Sleeping Systems

WHAT'S BEST FOR YOU ?:

To determine what's best for you, consider the following. In what conditions will you be using it ? How much are you willing to invest ? What comfort level are you willing to accept ? How long do you want it to last ? Are weight and compactness important ?

For consistently wet or damp weather conditions, consider either a synthetic bag--which insulates well when wet, or a goose down bag encased in gore-tex or gore-dryloft--and be careful to keep it dry--down doesn't insulate when wet.

Synthetics like lite-loft, primaloft, polarguard, hollofil, microloft, etc. are superior for wet conditions, and are cheaper. That's about the extent of their advantages over down ! However, if you are primarily outdoors in wet, damp conditions, a synthetic bag may be the best choice. My personal synthetic fill favorite is the newer Polarguard 3D which is less bulky and compresses nicely.

Goose Down is lighter, more compressable, warmer by weight, and much more durable and long-lived (like 300%). With the invent of gore-tex and it successor, dryloft as coverings for down bags, down is a consideration even in damp environs. You can also further encase a down bag in a gore-tex bivy sack for greater waterproofing.

In the winter, some folks prefer synthetic bags for long-duration outings. The reason is that in extreme cold, your body releases moisture as you sleep, so the down bag gets wet from the inside even though well protected from the outside. One way to prevent that is to use a vapor-barrier lining which keeps the moisture away from the down.

In my opinion, even though down is more expensive (much more so in high-end bags), it is a better long-term investment since it will last 3 times longer, if properly cared for. At the same time, the comfort level, lighter weight, and ease of packing can't be beat. How's that for an objective view ?

However, having got that bias off my chest, I, as one who lives in the damp Pacific Northwest USA, desire to have a nice, lightweight synthetic bag. The newer Polarguard 3D looks pretty good.

Incidently, in my opinion, the two premier bag makers are Western Mountaineering and Feathered Friends. My second tier includes Marmot, The North Face, and Moonstone.

ATTRIBUTES TO LOOK FOR:

* For colder weather, get a draft collar which cinches around the neck--keeps warm air in and cold out.
* Generous draft tube along entire length of zipper.
* For warm weather, look for ease of ventilation.
* Full side zip so you can air out your feet during warmer weather.
* 700-800 fill-power down lasts much longer than cheaper 550 fill power. In the long-run its probably cheaper.
* Double side zipper so you can still use the bag if one zipper blows out.
* There should be a velcro or snap-shut closure over the zipper, at the top of the bag to prevent the zipper from sliding in the middle of the night.

SLEEPING PADS:

**Closed-Cell Foam Pads**, on the plus side, are ultra-light, inexpensive, waterproof, and durable. On the downside, they are bulky, inconvenient to pack, and unconforming to your body and the terrain.

**Open-Cell Foam Pads**, on the plus side, are ultralight, inexpensive, compresses better than Closed-Cell Foam and cushions well. However, the thing is really just a sponge. When it touches moisture it becomes a soggy sponge. Most often, the open-cell variety is encased in a nylon inflatable shell to protect it from the elements. These are the Self-Inflating Mattresses.

**Self-Inflating Mattresses**, are very comfortable, have adjustable air pressure, good body heat retention, compress better than closed-cell and, and are easy to pack. They are relatively expensive, are heavier than Closed-Cell pads, and are prone to puncture (optional repair kit adds even more weight to the pack).

In summary, Closed-Cell is lighter, cheaper, and bombproof. Self-Inflating Mattresses are more comfortable, compact, and warmer. To determine which pad is best for you, consider what your needs are. In what weather conditions are you using it (or a combination of them)? Consider importance of warmth, weight, price, bulk, durability, and general comfort. What's your priority ? You might consider a 3/4 length closed-cell for a quick minimalist over-nighter; or a full-length 1 1/2 inch self-inflating for a long-distance trail trek; or a combination of self-inflating and closed-cell during the winter--on the snow--for maximum warmth.

#### Stoves

WHAT'S THE BEST STOVE ?:
To determine the best stove for you, answer the following questions.

How much will you spend ?
You could spend as little as $10 a cartridge for sterno type cookers or as much as $250 for an ultralight Primus titanium butane/propane stove, with a plethora of choices in-between.

How little do you want it to weigh ?
The Whisperlite weighs about one pound without fuel. The Primus titanium weighs 3.4 ounces without fuel. Many other options in-between and over one pound.

What temperatures will you be cooking in ?
**In warmer weather**, especially, the butane/propane stoves are convenient, efficient, effective, and lighter in weight. There is no priming or wasted fuel. Turn it on and off, that's all there is to it. Compared to white gas stoves (like the MSR whisperlite), the butane/propane stoves offer simmering, no flare-ups, no soot, clean burning, and instant lighting. There are very few parts, so maintenance is almost nonexistant. In the cold, however, these stoves typically don't perform as well because the liquid fuel doesn't vaporize well in the cold. The liquid needs to vaporize in order to burn as a gas. If a person can keep the fuel canister reasonably warm, however--by sleeping with it, covering it with insulation of some sort, or whatever--then these stoves perform a little better in the cold. Also, the butane/propane mixture performs better in cold than does butane alone.

**In colder temperatures**, gas stoves typically perform better than butane and butane/propane stoves. One of the problems with gas stoves in the snow is getting snow mixed in with the priming fuel, which makes it more difficult to get the stove started. Once going, though, they perform well. It helps to keep the stove out of the snow, as much as possible. A section of wire mesh or lightweight wire frame placed under the stove will help it "float" and make it more stable.

What kind of food will you be cooking ?
Has an impact on the type of fuel is best for you, thus, has impact on type of stove. White gas stoves like the Whisperlite burn hot (after priming) and are great for boiling water, but do not simmer worth a hoot. If you need to simmer soup or such, think about getting butane/propane mixture burning stove.

Will you be travelling outside the U.S. ?
For travel outside the U.S., where white gas may not be readily available, a good multi-fuel stove like the MSR Whisperlite Internationale 600 is a good alternative. It is basically the same as the Whisperlite, but is a little heavier because it has a more robust fuel intake system to accomodate kerosene and unleaded gasoline.

ATTRIBUTES TO LOOK FOR IN A STOVE:

* ease of assembly each time it needs to be used.
* must be sturdy (1) bottom must have legs or stand that provide stability even on rough ground, and (2) must have adequate base for cook pot stability, even when stirring food in pot.
* disconnects from its fuel source--even though fuel canister is not empty--for ease of transporting and for safety reasons.
* folds-up into small, compact, easily packable size.
* fits into your cookpot, for space saving advantage:

**Tip**: After my stove cools thoroughly, I put it into a one-pint heavy-duty freezer bag before putting into my cook pot, just in case any fuel residual is in or on the stove (but make sure it's thoroughly cooled).

* ease of starting--does it need to be primed, first ? (hassle alert).
* ease of controlling heat--for simmering (hassle alert).
* Does the stove require maintenance ? Is it easily maintainable in the field ?

#### Tents & Bivies

TYPES OF TENTS:

The following information isn't intended to be an exhaustive survey of all types of tents in existence. It is, however, a review of the types of tents that have been proven to be the most successful and popular within the backcountry community.

**Dome:**
Basic dome shape with walls that gently curve in and up to meet at the apex. This design provides ample headroom, maximizes "living space" and the ability to sit upright. However, its basic symetrical design with just two poles leaves a significant amount of unsupported tent material, such that, this design is best used in moderate weather conditions, only.

**Modified Dome:**
Variations on the basic dome shape provide more structural integrity for withstanding nasty weather. Most notable is the addition of more poles--including cross sections--and tapered tent ends for better wind resistence.

**Hoop / Tunnel:**
In the shape of a tunnel, typically with a higher section in front--just high enough to provide the only place in the tent where you can "barely" sit up--and tapering downward to the rear. This is a one or two pole design with the longer pole in front. This tent requires stakeing in order to create and maintain structural integrity. Also, and most attractive, is that this design is very lightweight--but does not provide a lot of room to move around in.

**Pyramid / Teepee:**
Essentially, this is just a waterproofed sheet or tarp draped over a center pole and staked out. This design is gaining popularity for snow camping. It provides a roof under which you can dig and design your living quarters. In the summer, however, beware the bugs !

**Freestanding:**
This is, undoubtedly, the most convenient tent design to work with. It is easier to set up, since it is self supporting--once the poles are inserted, it stands on its own without tent pegs. After set up, it can easily be moved around to the ideal piece of ground. It can be turned upside down and lifted overhead to shake out dirt, turned upside down or hung from a tree (or ceiling) for ease of drying. However, it is always prudent to stake out these tents since they could easily be relocated by a strong breeze. In addition, on double walled "free-standing" tents, the fly may need to be staked out, as well.

**Single-Wall Construction:**
These tents are made with one layer of waterproofed / breathable material. They forego the use of a tent fly. They also, typically, require less zippers, stakes, webbings, and tie-out cord, and as a result, are significantly lighter than double-walled tents, and are easier to set up. Ventilation is a critical factor here, because these tents are more prone to condensation. Whereas the double walled tents have an inner canopy made of thin, uncoated nylon which breathes very well, and air space/air movement between the fly and canopy to provide excellent breathability and ventilation, the thicker, waterproof-coated material of the single-wall tent does not breathe as well, thus condensation results. Extra care must be taken to ensure that these tents have good ventilating features like lower vents in back to draw in cold air and high vents in front to release warm air. Also, it is important to pitch the end of the tent into the wind to enable increased ventilation. It is helpful to leave wet, steamy gear outside or under the vestibule so it won't create water vapor inside the canopy. Also, heavy breathers are more inclined to see condensation.

**Double-Wall Construction:**
The inner wall is uncoated, breathable nylon (solid or mesh) and the outside wall is coated, waterproofed, non-breathable nylon. The inner wall allows for excellent water vapor transfer out of the tent chamber and the outer wall provides excellent rain and wind protection. The air space between inner and outer layer also provides a bit of insulation, to keep the tent warmer in Winter and cooler in Summer.

TENT USAGES:

**Summer:**
Ventilation, Sunshade, and Bug Protection are the functional keywords here. This class of tent is designed primarily for stable, moderate warm-weather conditions. These lightweight tents, typically, feature a plentiful amount of nylon-"no-see-um"-mesh screen for ventilation and bug protection, with nylon flooring and a "waterproofed" nylon rainfly for protection from the occasional summer rain shower. They are lightweight and pack small. They are usually light-colored in order to reflect sunlight and, consequently, help keep the tent's internal temperatures relatively bearable.

**Three Season:**
These tents provide an adequate storm shelter from heavy rain and moderate winds. However, they fall short of 4-season Mountaineering tents in that their design and/or materials will not stand up to high winds and/or snow.

**All-Season:**
Typically, this tent is one of two things. It is either (1) a 3-season tent, beefed up with stronger poles and more or them and with design changes to enable better snow and wind resistence or (2) an overgrown Mountaineering tent. In any case, this tent, structurally speaking, falls somewhere between the Three-season and the Mountaineering tent.

**Mountaineering:**
This is a bombproof, low lying, aerodynamic, weather shedding, lightweight, spartan, small footprint for sitting on Mountain perches, tent. If you spend four-seasons in the high country, invest in one of these.

TENT POLES & STAKES:

-- Carry an extra tent stake or two. They bend, break, and disappear.
-- Carry three or four of the stout Eastman Monster Stakes to anchor your tent corners. They are made of Tempered Aluminum and have a larger diameter for added strength. The remaining stakes can be the wimpy regular aluminum ones that came with your tent.
-- Aluminum tent poles are better that Fiberglass. Most good tents, nowadays, are using Tempered Aluminum poles which have a better strength to weight ratio than regular aluminum. Carbon fiber also provides an adequate strength to weight ratio. All variations of Fiberglass, in my opinion, are not adequate for backcountry tent poles. They are heavier than aluminum and provide less strength. In addition, they are prone to splinter and break under high stress.

FEATURES TO LOOK FOR IN A TENT:

**-- Tub Floors:** adds significant waterproofing protection in that it lifts floor seams off the ground.
**-- Factory Seam-Seal:** hundreds/thousands of needle holes along the seams let in water. They must be sealed with *SeamGrip* or some other sealer. In some cases, sealing done at the factory is sufficient, but to be safe, an additional, light application of your own won't hurt. On single-wall tents, seal all seams. On double-wall tents seal all seams on tent fly and seams on tent floor extending six inches up the sides (this will protect from any water splashing up under the fly).
**-- Vestibule:** (1) provides space for gear--clean and/or muddy (2) provides shelter over tent door opening for entry/exit during inclement weather (3) provides shelter for cooking in inclement weather. (4) provides shelter for dog companions.
**-- Appropriate Color:** light colors in Summer to reflect light/heat, dark colors in Winter to absorb light/heat.
**-- Living Space (not floor space):** manufacturers publish floor-space specs but your job is to get inside the thing to see how much space is actually usable for your purposes. In a modified dome, for example, the manufacturer's "Floor Space" probably will equate to your "Living Space", whereas, that may not be the case with an A Frame because of its shape. Try them out for yourself.
**-- Headroom (not height of tent):** Do you want to be able to sit up in more that one spot in the tent ? Test it out. The manufacturer tells you only the highest spot. Its your job to test out the rest !
**-- Ease of Set Up / Take Down:** It's nice to have a tent you can set up and be inside of, in just a few minutes. I have one tent that's very simple to erect--one pole inserted from the inside. I have another which is equally simple setup--two poles installed from the outside. Test them out for yourself. What works best for you. Will you get caught in a Summer storm in the mountains ?
**-- Ease of Entry / Exit:** tents with two doors are very helpful. Consider the shape of the door, how easy it is to enter/exit, does the vestibule get in the way, does the door zip provide a large enough opening ? Are the zippers large enough to grip with gloves on--with cold hands ?
**-- Ventilation:** critical requirement ! Do homework on this one. On single-wall tents, look for low vents in back and high vents in front, look for double door zips so "air holes" can be created even when the door is securely shut. On double-walled tents, look for mesh windows, rear mesh windows, mesh doors (in addition to solid material doors), make sure design allows for good circulation of air between the tent and the tent fly.
**-- Amenities that aid in making it more "Homey":** e.g., ceiling loops (to use for rigging up clothes line), mesh wall pockets (for organizing and storing small gear items that are readily needed) dual entry way (so you won't step on your partner's face in the middle of the night).

TENT CARE:

**-- Don't Store It Wet:** clean & thoroughly dry whenever you can, on the trail, and especially, when you get home, in order to avoid mildew destruction.
**-- Use a Ground Cloth:** protect the bottom from object intrusions.
**-- Fastidious Selection of Tent Sites:** protects tent bottom & aids in a good night sleep.
**-- Seal all Seams !** keep water outside !
**-- Don't Cook Inside:** duh ! Don't melt the nylon walls ! Don't burn down your shelter ! Don't asphyxiate yourself !
**-- Don't Leave It In the Sun for prolonged periods--set up in shade, if possible:** UV rays break down the fabric (and waterproofing).
**-- Keep It Swept Out:** dirt under you and your sleeping bag slowly grinds away at the tent floor.
**-- Isolate Wet/Muddy Gear:** better to clean up one small messy spot than the whole tent.
**-- Assemble/Disassemble Poles with Caution:** poles chip, dent, break, and cords stretch.
**-- Poles & Stakes in Separate Sack:** poles & stakes can tear and/or poke holes in the tent material.
**-- Stuff It for Transport** constantly folding the same way causes creases which compromise the weatherproofing on the tent, as well as, eventually, cracking the material, itself.

TENT PITCHING:

-- Look for a well-drained plateau or flat spot--avoid low lying areas subject to water drainage or collection, if a sudden rain storm should occur.
-- Always pitch lower-rear-end of the tent into the prevailing winds. This will increase ventilation inside the tent and protect the tent entryway (and you) from wind and inclement weather.
-- Look for natural, protective windbreaks like boulders, clumps of thick brush, trees, etc. behind which to pitch your tent, in order to enjoy a more calm cooking and camping area.
-- Before driving tent stakes too far into the ground, lay on your sleeping bag inside the tent to ensure that (1) you will be lying level or with head slightly higher that the rest of your body and (2) there are no stones or sticks directly under the floor. Make adjustments, then finalize your stake-out.

TENT LIVING:

-- Carry miniature card games, cribbage, etc., to pass time during inclement weather.
-- Use plumber's candles or commercial candle-lanterns for prolonged periods of artificial light.
-- Establish consensus on rules of the tent related to eating, drinking, wet clothes, etc. in the tent, before the trek begins.
-- Use available mesh wall pockets to organize and store items which are needed in the middle of the night--flashlight, toilet paper, time piece, altimeter, whistle, medicine, etc.

BIVY SACKS:

Bivies are a great alternative shelter when you want to travel fast and light. There are definite trade-offs, though. Typical applications or situations where bivies are frequently used are (1) emergency shelter for very long day hikes (2) emergency and/or primary shelter for alpine climbing (3) long-distance, high-daily-mileage travel, and (4) multi-day cross country travel.

**Positives:**
-- Lightweight (my Bibler weighs 18 oz)
-- Packs Small (like a medium-sized cantaloupe)
-- Requires Little Ground-Space--fast and easy to deploy

**Negatives:**
-- Condensation is a serious problem.
-- Gear has to stay outside.
-- Tight quarters. Hard, but not impossible, to change clothes inside.
-- Clostrophobic quarters when inclement weather necessitates total closure.

**Tips:**
-- Place boots and/or clothes in headspace. This (1) keeps them dry and (2) lifts the bivy material off your face.
-- Sew loop on hood. Tie parachute cord on loop. Toss parachute cord over tree limb. When snug in bivy, pull on other end of parachute cord to pull bivy material up off your face. Provides ample room for reading via headlamp.
-- Use Gore-Tex or Dry-Loft sleeping bags, otherwise condensation could get fill material wet--especially a problem with down.
-- Apply thin bead of SeamGrip on all seams, even if bivy was "seam-sealed at the factory".
-- A bivy with 2/3 coverage of Gore-Tex, Todd-Tex, or other waterproof, breathable material, generally has less condensation problems. Most bags have top 1/2 in waterproof, breathable material and the bottom 1/2 in waterproofed, non-breathable tent bottom material--(ergo the condensation). Some manufacturers--like Feathered Friends--make bivies with 2/3 wrap around gore-tex and 1/3 tent bottom--(ergo more breathability and less condensation).

**Attributes to Look For:**
-- Large enough for a Winter sleeping bag and mattresses.
-- Room in headspace for (at least some) gear.
-- Factory-sealed seams.
-- Mosquito netting.
-- Top 1/2 to 2/3--preferably 2/3-- covered with breatheable, waterproof material.
-- Design which best prevents you from getting clostrophobia.

SUMMARY FOR TENTS & BIVIES:

**Understand Your Requirements:**
**Research/Test Every Feature for Yourself (Don't Believe or Trust Manufacturer's Specs !):**
**If Unsure, Rent First:**

####

#### Water Treatment

BOILING:

Water-borne microorganisms cannot survive a rolling-boil. A few minutes (3 or 4) should suffice. The problem here is twofold, (1) dirty water stays dirty--albeit safe--, and (2) it takes a lot of heavy fuel to boil all your drinking water--particularly a problem on longer trips.

IODINE TREATMENT:

This is truly the cheap, ultra-lightweight water treatment for hard-core minimalists. The problem here is threefold, (1) dirty water stays dirty--albeit safe--, (2) it requires a lengthy wait while the iodine works its magic, before the water is safe--like 1/2 hour or more for cold water--, and (3) it tastes terrible (unless you like iodine).

PURIFIERS:

These use a combination of filtration and chemical (iodine), enabling them to deactivate viruses and other microorganisms that are too small to be trapped by filtration alone. These are good choices for foreign travel. On the downside, purifiers are relatively costly (US $50 to $200) and heavy (1/2 to 2 lbs).

PUMP FILTERS:

This method uses a hand pump to force water through a complex matrix of micropores that let water pass but trap harmful bacteria and protozoans. Filters eliminate bacteria, protozoa, as well as clarify the water. On the downside, they are relatively costly (US $50 to $250), and heavy (1/2 to 2 lbs).