Backpacking Nuts and Bolts

A Resource Guide for **GIRL AND ADULT BACKPACKERS**

Girl Scouts San Diego

The Wilderness Ethic

A good hiker looks after her partners. Not only does a backpacker have a responsibility to take care of the wilderness, but she also needs to look after the well-being of her fellow hikers. A sign of a skilled hiker is that she is aware — of the weather, hiking conditions, the day's itinerary, her location on a map — but she also has one finger on the group pulse. Is everyone feeling okay? Is someone worried about the upcoming stream crossing? Is one member afraid of bears, or snow fields or high passes? How can you help them?

A hiker who truly possesses the Wilderness Ethic is skilled, knowledgeable and willing to help others she meets along the trail: someone who has perhaps missed a trail junction, or lost their food to a bear, or is hurt or experiencing altitude sickness. Real, old-fashioned integrity and honor exist in the backcountry — keep up the tradition!

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Welcome to BACKPACKING

We are here teach you everything you need to know to begin backpacking in the wilderness. Our training will give you an excellent base from which to start your journey into the woods; it is your continued experiences hiking in the backcountry that will teach you the subtleties and help you refine and strengthen your outdoor skills.

We want to encourage competence, confidence and safety. Prevention is the biggest word in outdoor safety, and we prevent problems by being prepared. Our job is to prepare you, to give you the knowledge and skills necessary to make important decisions about gear, clothing, trip planning and safety, so that you can hit the trail feeling confident and self-sufficient.

Thanks for being a part of this awesome journey,

Girl Scout Backpacking Trainers

Supportive RESOURCES

Safety Activity Checkpoints

Let's Go: Council guidelines for troop and group trip and travel.

Property Resource Guide: Council guidelines for general camping and council property use

Volunteer Training Specialist—(619) 610-0741
A staff member who coordinates all Girl Scout Council training, materials and volunteer trainers.

Program Specialist—(619) 610-0816
A staff member who coordinates the development of all outdoor programming and consults volunteers on appropriate trips and adventures.

Leave No TRACE

Minimum-impact travel is essential to the preservation of our wild areas, and the principle guides every aspect of our backpack trip planning. In the 1990s, the National Outdoor Leadership School (NOLS) partnered with the US Forest Service to create the Leave No Trace curriculum for educating the public on how to — well, *leave no trace!*

Seven principles guide Leave No Trace:

1. **Dispose of waste properly.** That seems obvious, but people are always surprised to hear that this includes apple cores, orange peels and even toilet paper and used feminine supplies. Your food debris seems harmless — after all, it's biodegradable. But this food can poison certain ground dwellers, and also serves to habituate animals to human food. Packing out "t.p." may seem gross, but it's even nastier to see used t.p. after animals have been digging it up.

2. **Travel and camp on durable surfaces.** Stay on established trails, and if you travel cross-country (off-trail) walk on rock or snow rather than fragile grasses and plants. Spread out so that your party doesn't create a trail through trail-less terrain. Don't ever cut switchbacks! Set up your campsite on hard durable surfaces, preferably in an established campsite, at least 150 feet from water. In fact, all your activities — washing, going to the bathroom, dishes, brushing teeth — should all be done at least 150 feet from a water source.

3. **Leave what you find.** All plants, animals and relics are protected in National Parks, but picking pine cones, branches and flowers is a real no-no in all wilderness areas. Make it a point to not disturb your surroundings at all, or interfere with the processes of nature. You're a guest.

4. **Minimize campfire impacts.** Campfires have traditionally been part of the outdoor experience, but it is also true that the wood we burn is the same wood that nature relies on to decompose and create rich soil for more trees and plants to grow. Plan on cooking with a gas stove, and if you do have a campfire, burn only downed wood, use an existing fire ring and put your fire Dead Out. Fires are not allowed above 10,000 feet — tree line. (Yosemite's limit is 9,600')

5. **Respect wildlife.** Keep your food away from wildlife, and don't ever feed animals. Animals that are habituated to human food become a nuisance (chipmunks) or a danger (bears) to humans. Even apple cores, which seem harmless and are biodegradable, are poisonous to some woodland creatures.

6. **Be considerate of other visitors.** Keep your group noise to a minimum, and try not to camp right on top of someone else. Give them some space, so that you all can enjoy the wilderness experience.

7. **Plan ahead and prepare.** Take the time to do it right. Get your permit and check in with a ranger before you head out. Pack the right gear. Leave your itinerary and gear list with an in-town contact. Learn the techniques that minimize your impact on the wilderness.

Backpacker Tips!

Throughout this booklet, you will find Backpacker Tips — hard-won backpacker savvy that will give you a head start on the trail and in camp.

As you look over the Backpack Checklist, keep the following ideas in mind:

Weight:

You want your pack to weigh 20 - 25% of your body weight, or 35 pounds *maximum* (regardless of what you weigh). Here are some ways to reduce your pack weight:

- Rent/purchase/borrow lightweight gear designed for backpacking, not camping.
- Share the weight: with community gear, you're dividing the items among your group to help distribute the pounds evenly. Food for shared meals is also divided equally (by weight) among your cook-group partners.
- Downsize: use travel-sized toothbrush, paste, contact lens solution, deodorant, etc. Put sun screen into a small plastic squeeze bottle. Share your kitchen Campsuds with a buddy. Re-package your food to small zipper lock bags.

How Much?:

Experience will teach you how much food, toilet paper, mosquito repellent, soap, etc., you need for a weekend, week-long or three-week adventure. In the meantime, portion out your food by meal and day for better precision and less waste. Consider how much toilet paper you use at home, figure on some extra "insurance" t.p., and you're good to go. Don't duplicate items: you only need one packet of duct tape, so don't tuck it in your first aid kit as well as your emergency kit.

Smelly Stuff:

Your supplies — soap, feminine supplies, lotion, etc. — should be unscented, so the odors don't attract wildlife.

Personal Judgment:

There is no substitute for good decision-making, based on the situation at hand. What may appear to be a hard rule (no eating in a tent, for example) may break down in an emergency situation. Learn, appreciate and follow the safety advice in your training, but remember that your good judgment prevails in all situations.

Backpack Trip Rating SYSTEM

Whether you are considering a council-sponsored backpack trip, or planning one of your own, it's important to understand how we determine the difficulty of each trip. This chart below allows us to analyze our trips and determine their level of difficulty.

A trip's difficulty comes down to averaging together just a handful of variables:

1. Distance from home: a local trip requires less emotional maturity than a long-distance trip like the Appalachian Trail on the east coast.
2. Altitude: low elevation trips are far less taxing on the body than a trip above 10,000 feet.
3. Elevation gain/loss: a hike that gains over 500' of elevation over one mile is a workout; if it gains 1000' feet per mile, it is very strenuous. Also to be considered is the pounding that takes place on the body when you're descending steep terrain.
4. Mileage: pretty straightforward—the farther you go, the longer it takes!
5. Length of trip: an overnighter is pretty easy, but a 10-day trip requires more emotional maturity and the ability to deal with others long-term and in close quarters.

Extra challenges: don't forget to average in some of the other factors that can up the ante on your trip. No water, snow traverses, cross-country navigation, stream crossings and day hike mileage and elevation gain all require more advanced skills and maturity. The "X-Factor" is that certain "indefinable something" a trip leader recognizes and acknowledges—call it a gut hunch—that might tweak your trip rating up or down a bit.

Rating	**1**	**2**	**3**	**4**	**5**
Variables					
Distance from San Diego	Anza, Laguna	S. California	Sierras	West Coast (out of state)	East Coast
Altitude	Desert, Laguna < 6,000 feet	Backpacking 8,000 feet; day hiking to higher elevations	Backpacking 8-10,000 feet	Backpacking 10-12,000 feet	Backpacking 10-15,000 feet
Elevation gain/ loss	Level		Gaining 500 feet/mile		Gaining 1,000 feet/ mile; gaining/losing more than 1,500 feet in a day
Mileage	< 3 miles/day	< 5 miles/day	< 8 miles/day	<10 miles/day	> 10 miles/day
Length of trip	1-2 days	2-4 days	5 days	6-7 days	8 or more days
ADD extra challenges:	The following challenges might increase a trip's difficulty rating.				
No water	A dry camp requires a water cache nearby, or may involve carrying water or hiking a distance to waters.				
Snow	Navigating over snow can be easy & straightforward, or require hours of difficult travel.				
Cross-country	Navigating off-trail w/map & compass can require extra agility and stamina.				
Stream crossing	Crossing large streams can require agility, stamina and excellent judgment.				
Day hike mileage, elevation gain/loss	A strenuous day hike from a base camp to bag a peak might elevate a trip to higher rating.				
X-Factor	Trip leader's gut sense of what the trip offers and demands, based on personal experience.				

Backpack Trip Rating SYSTEM cont.

To simply say a trip is easy, moderate, difficult or strenuous leaves a lot to the imagination. Using the chart gives us a way to rate a trip with concrete information.

Here's how it works:
1. Consider the trip you care to take, and give it a number rating for each listed variable.
2. Add ratings for any "extra challenges,' such as cross country travel or peak bagging.
3. Average your numbers: add all the rating numbers and divide by the number of variables. That will give your trip it's final rating.

An example: San Jacinto Backpack Training Trip via the Palm Springs tram. Rated 2.2

Variable	Information	Rating
1. Distance from San Diego	San Jacinto is in S. California	2
2. Altitude	8,600-9,000' Backpacking	3
3. Elevation gain/loss	400' over 2.5 miles	2
4. Mileage	2.5 miles to Round Valley	1
5. Length of trip	3 days	2
Extra challenges: **6. Day hike mileage**	Day hike to San Jacinto Peak is 7 miles round trip	3
7. Day hike elevation gains	1800' over 3.5 miles	3
Add ratings together		Total: 16

Very Easy Math	
Rating total	16
# of variables	7
Average the numbers: 16 divided by 7	2.2
Trip rating	2.2

Trip Assessment—Leader Tips

Taking the time to numerically rate your backpack trip allows you to honestly assess the various obstacles you may encounter. This kind of reflection makes you a better trip leader. By analyzing the terrain and conditions well in advance of your trip, you can:

- Set prerequisites, if necessary, to ensure girl/adult readiness and progressions.
- Identify areas of risk. You can monitor snow conditions, stream levels or other variables well in advance of your trip, allowing less surprises and giving you adequate time to upscale your gear or change your route, if necessary.
- Identify areas of concern. If you have a participant who doesn't appear to be sufficiently physically fit for cross-country travel, you can address this in advance of your trip.
- Communicate clearly with your group members so they can honestly assess their own readiness, the quality or inclusion of certain gear. This kind of advanced preparation develops the kind of self-sufficiency and independence we are trying to instill in our girls.

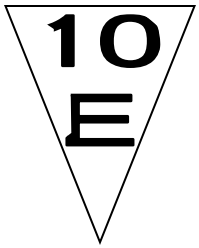
Ten ESSENTIALS

In the 1930s, the Mountaineers — a Seattle-based hiking, climbing and conservation organization — came up with a list of 10 essential items that no climber/hiker should be without. Experience rescuing others taught them that if hikers would just carry these 10 essentials, they would be able to survive backcountry emergencies until help arrived.

These 10 Essentials should be carried by every hiker at all times:

To Find Your Way

1. Flashlight (with spare batteries and spare bulb - if applicable)
2. Topographical Map - along with the ability to interpret the map
3. Compass and the knowledge to use it



In An Emergency

4. Pocket Knife
5. First Aid Kit
6. Waterproof Matches (Strike Anywhere matches in water-proof container)
7. Fire Starter (a small candle in water-proof container works well)

For Your Protection

8. Sun Protection (shade hat, sunglasses, sunscreen and lip block)
9. Cold Protection (extra clothing as the weather demands: fleece sweater, jacket, gloves, beanie, poncho/water-proof jacket)
10. Extra Food & Water (*Extra* is above and beyond what you expect to use during an outing)

The Extra Essentials

11. Toilet Paper (hygiene kit)
12. Whistle - signal an emergency by blowing your whistle in series of threes
13. 10 - 15 feet parachute cord
14. Bandana

As time passes, new technology (GPS, cell phones, etc.) have re-defined what items people consider essential. The original 10 Essentials are still the best presentation of the base items every hiker should carry.

Backpacker Tip!

Child-proof prescription bottles have a water-proof seal. The tall ones make excellent water-proof match and fire starter containers. Double zipper-lock bags are also excellent for this pur-pose.

Packing with KITS

It helps to pack certain items in kits for easier retrieval. Personal preference and experience teach you how best to organize your kits. There's no reason to pack redundantly: duct tape need only appear in one kit.

Emergency Kit, all packed in a zipper lock bag or stuff sack, might include:

- Water proof matches & fire starter
- Duct tape……..……rolled on a short pencil or on adhesive paper
- Needle & thread……travel-size cardboard packet with needle pushed under thread
- 10 feet of thin nylon rope……101 uses, including replacing a worn boot lace, extra lashing, etc.
- Extra batteries and spare bulb for flashlight…….be sure they are the correct size for your flashlight!
- Emergency blanket……..a space blanket
- Water purification tablets……a back-up if your filter dies, emergency where your group splits up, etc.
- Critical spare parts……..clevis pin (external packs), water valve for hydration systems, etc.

A Blister Prevention Kit (which may just be part of your first aid kit) might include:

- Duct tape
- Mole skin/foam…….bunion pads already have the convenient doughnut shape
- 2nd Skin, or other blister protection bandages
- Tincture of benzoin ……used to improve adhesion of bandages

Hygiene Kit in small stuff sack:

- Toilet paper in zipper lock bag
- Zipper lock bag for packing out hygiene trash
- Necessary or emergency (and unscented) feminine supplies
- Travel-sized bio-degradable soap for cleaning hands

Eating Kit:

- Plastic bowl, plate is optional
- Insulated cup (with a lid for longer-lasting heat)
- Spoon (a fork is optional; your utility knife is the only knife you need)
- Bandana (use as tablecloth, cutting board, clean up towel, napkin)

Cooking Kit:

The type of food you're preparing will cue you in to the tools you need for cooking. Here are the basic cooking needs:

- 1 qt. pot w/lid (for four people; a lid that doubles as a frying pan is a nice feature)
- Pot grips/holder
- Stove & fuel (see page 25)
- Windscreen (*do not* fully surround a canister stove!)
- Lighter/matches (separate from your emergency matches)
- Clean-up: 1/2 scrubby sponge, bio soap
- Hair tie!

Also consider:

- Cutting board
- Frying pan
- Spatula
- Grill (in storage bag)
- Handi-wipe/napkins
- Storage bag for cook kit: you can use a stuff sack, mesh bag or a five-gallon Ziplock bag that even has a handle

- Experience will dictate how much cutlery and culinary accoutrements you personally like to have. Spice kits, coffee makers, etc., are all options, too.
- Don't be tempted to buy one of those metal mess kits that come with several frying pans, bowls and a mini pot. They're heavy, redundant and the pot is useless.
- Ziplock and Gladware brands manufacture little bowls that are lightweight and just the right size for your meals; the lid is a nice touch, too.
- Ziplock bags (with a double seal) are excellent for re-heating dried food, and can be used as an impromptu bowl.
- For the lazy camper in us all, and the ultimate in easy kitchen clean up, oatmeal packets are water proof. You can add your water directly to the packet and eat from there, without dirtying a bowl.

EQUIPMENT

Hiking BOOTS

A good backpacking boot will give you excellent support for carrying the weight of a backpack over rough terrain. Boots range widely in quality, materials, price and features. You want to choose a boot for its ability to:

- **Protect your feet** from sharp rocks (thick enough soles)
- **Support your ankles and knees** (stiff enough soles)
- **Provide comfort** (materials, fit, weight)
- **Provide traction** (thick or rugged tread)

Boot Vocabulary:

Light-Duty: low-cut, below-the-ankle trail runner, great for scrambling, day hiking, fast packing.

***Mid-Duty:** mid– or above– ankle boot with good arch and ankle support, excellent for backpacking and less expensive than heavy-duty boots.

Heavy-Duty: rugged boots that will take you off-trail or allow you to explore serious terrain without compromising knees, ankles and arches.

*Recommended for beginners: these are less expensive boots, allowing you to put a little more money into the socks.

Comfort:
For the best success, go to a boot fitting specialist. Have your boots fitted at the end of the day. Both feet should be measured carefully, both standing and sitting, with a Brannock device. Your boot should fit snugly, but not tight. There should be wiggle room in the toe box, and your heel should feel locked into place, though a 1/4 inch of movement as you walk is okay.

You should walk around the store, and not feel any discomfort at the breaking point across the tops of your toes. You should walk up and down the practice ramp, feeling for too much slippage in the ankles and heels (uphill) or toe jamming (downhill). Jump up and down, facing downhill, to be certain your heel is locked in place and your toes don't hit the front end of the boot.

Finally, repeat this process at a discount store.

Inserts:
Aftermarket foot beds (Superfeet, Sole, Dr. Scholl's or even custom inserts) are used to help refine the fit of your boots. They help to lock in the heel and support the arch of the foot inside the boot. An avid hiker should expect to replace these annually.

Waterproofing & Cleaning:
Gore-Tex fabric is often used to line the insides of boots as a waterproof, breathable barrier. Whether or not your boot has Gore-Tex lining, you'll want to waterproof the outside of your boots at least once a season. The store where you purchase your boots will recommend the proper leather/fabric product.

Clean your boots after trips by wiping the dirt/mud off with a damp cloth and letting them air dry. Don't ever heat dry your boots. You can re-treat your boots with conditioner if you like.

Breaking in Your Boots:
Plan on several weeks to break in your boots. Fabric and leather boots break in quickly, split-grain leather can take longer and full-grain leather boots often require more rigorous breaking in. After you've broken in your boots with day hikes, continue to break them in by taking practice hikes with a loaded backpack.

Backpacker Tip! Blister prevention: you can use moleskin directly on the insides of your boots to protect your feet from "difficult" spots, such as under the lace grommets.

Personal CLOTHING

What you wear in the backcountry has much to do with your safety and comfort. Choosing the correct layers and fabrics is critical for good insulation, and selecting the right clothes will also have an effect on the weight of your pack.

Some important words:

- **Layering** - dressing in layers of lightweight clothes instead of one or two heavy layers. The layering system helps you adjust easily to varying temperatures while you hike.
- **Wicking** - this is the ability of certain fabrics to pull moisture away from your body, helping you insulate yourself against the elements and stay warm.
- **Breathability** - fabrics that breathe allow your heat and sweat to escape, keeping you more comfortable as you heat up during exercise.

First, the fabrics:

Cotton Kills! is the big backcountry motto for clothing non-selection. Cotton retains moisture and doesn't dry quickly, a deadly combination that can suck the heat right out of your body and expose you to hypothermia.

Synthetic fabrics (poly-propylene, fleece, Capilene and other proprietary names) are your best bet for comfort, wicking (the ability to pull moisture away from your body) and evaporation. Wool and silk are natural fibers that are also outstanding insulators.

The layers:

Layer 1 is your everyday clothes, layers 2 & 3 are fairly interchangeable (mix & match) and provide an insulating layer for early morning, late afternoon, rest stops, etc., and layer 4 is the thick evening layer you wear for warmth when you're not active and/or to keep you dry.

Select clothes for flexibility and fit, not style. Layers 2, 3 and 4 must have the roominess to layer comfortably over one another. Some sweaters and jackets have excellent venting systems (pit zippers, for example) that allow you to exercise and not overheat or sweat up underneath the layers.

Layer 1	Layer 2	Layer 3	Layer 4
Fair-weather hiking/ mid-day clothes	**Middle insulation**	**Middle insulation**	**Thick insulation**
Hiking shorts	Long-sleeve poly shirt Poly thermal underwear	Poly-fleece sweater	Down/polyfill jacket
Wicking tee-shirt	Wool sweater	Fleece/poly pants	Waterproof jacket/poncho
Shade hat	Fleece mittens	Fleece hat	Waterproof pants

- Choosing your wardrobe, how much of this and that, is a personal preference, and experience will help you dictate what works best for you.
- The wardrobe can just as easily be purchased at Wal-Mart, saving you a bit of money.
- Use what's in your closet: gym clothes and soccer shirts and shorts are often made of synthetic fabrics.

Socks, Underwear & LAUNDRY

Socks:

Never wear cotton socks! Always use wool or synthetic socks to help wick moisture away from your feet and prevent blisters. When you try on new boots, try them on wearing your hiking socks.

Socks come in different weights, so experiment with different thickness and combinations. A thick, expedition sock might be just the insulation and weight to keep your cold feet warm, dry and blister free, yet another person would prefer a lighter weight sock to keep their feet cool and dry. Some might find that a liner sock under a medium weight sock provides the perfect fit. A winter hiker might prefer alpaca socks to wool for the added warmth.

Liner Socks:

Thin synthetic socks can be worn under heavier hiking wool socks as a liner. The friction that normally would occur between your foot and your sock gets transferred to the liner and the hiking sock, preventing blisters. Hiking socks with loopy insides also help to prevent friction.

Underwear:

Try to avoid cotton underwear, and definitely avoid lace! Sports bras are an excellent choice. Note that the plastic adjusters on bra straps are sometimes in front, which can be really irritating under your shoulder harness.

Laundry Day:

Chances are you don't want to spend a week in the woods without washing your clothes. At the end of each hiking day (3-4 p.m. is ideal) wash that day's clothes, and put on your hiking clothes for the next day, or your late afternoon insulating layers.

To wash your clothes, set up a washing station at least 150 feet from a water source (LNT), using your little plastic wash bucket or collapsible bucket (see Wilderness Sanitation, page 31). Use your biodegradable soap and wash and rinse your tee shirt, socks and perhaps your shorts. Let them dry in the afternoon sun, and depending on the weather, through the night.

Extend the life of that bucket of wash water. Find a secluded spot for a bath, and sponge yourself off before washing your clothes.

Clothing

Qty	Under wear & socks:		
2	underwear	wicking materials	NO Lace (to prevent chafing)
2	bras	recommend sport type	NO Lace (to prevent chafing)
2	liner socks	acrylic, nylon, silk or blend thin sock (prevent friction /	NOT cotton athletic sock
2	thick socks	warm insulating sock (high wool content)	NOT cotton athletic sock

	Layer 1	Layer 2**	Layer 3**	Layer 4	
purpose / time of day	cool layer for hiking mid-day	medium insulating layers; for mid morning & sundown; may also be sleeping attire		loft to keep warm during early morning & night	
Materials	wicking materials	wool, polys **(NOT cotton)**		down, holofil, polyesters etc.	
Pants	2 shorts **(NOT Jeans or overalls)** or	poly-lined athletic pant **(NOT cotton sweat pants)**		water repellant / proof outdoor / hunting pants **(NOT Jeans or overalls)**	<---Total of all layers ~ 0.25 inches
	convertible pants with zip-off legs	convertible pants with zip-on legs	silk / poly long underwear **(NOT cotton)**	poly- lined skiing pants **(NOTcotton lined athletic pant)**	
Top	2 T-shirt **(NOT tank top / sleeveless top)**	poly sweater / jacket **(NOT cotton sweat shirts)**	silk / poly long underwear **(NOT cotton)**	down / polyfill nylon shell thick jacket	<---Total of all layers ~ 1 inches
		wool shirt	wool sweater	thick poly thick jacket & wind breaker combination	
	long sleeve loose shirt		poly ski insulating top	vest / jacket combination	
Hands				gloves	
Head	shade hat	wool or poly fleece **(NOT cotton)** knit hat			

** Layer 2 or 3 items may also be sleeping wear.

Pack clothing as you use it. Put bulky jackets with sleeping bag to save space.

1st day clothing Bag*:	**Spare Clothing Bag:**	**Sleeping Clothing:**	**with Day pack:**
under wear	under wear	poly long under wear top	rain jacket
T-shirt	T-shirt	poly long under wear pants	wool knitcap
nylon wind shorts/pants	shorts		poly sweater / jacket
socks liner & thick	socks liner & thick		gloves
bandana	bandana	**with Sleeping Bag:**	**other**
whistle		down / holofill parka	water repellant / pant
shade hat			campshoes / water socks
sunglasses			
boots			

* Not weighed with pack

Backpacks 101

Before the 1950s, backpackers were a hearty lot that used rucksacks to carry their gear. Rucksacks (like today's daypack or book bag) had no frame, so the weight of all their gear sat on those burly (and sore) backpacker shoulders. In 1952, Dick Kelty invented a pack with an aluminum frame and a waist belt, thus introducing the first external frame pack to outdoor enthusiasts.

In 1972, Mr. Kelty revolutionized the external backpack: he padded the shoulder straps and waist belt, added a clip-release buckle and made vast improvements to the frame and capacity of the pack. Backpackers hit the trail in droves, finally being able to enjoy week-long excursions into the back country with a lot more comfort.

In 1977, Wayne Gregory began to develop the internal frame pack. As the technology grew, the market for internal frames moved from just the mountaineering crowd — who needed exceptional balance on difficult terrain — to average backpackers who were looking for a less wieldy option than the external frame pack.

Now, both external and internal frame packs are widely used in the wilderness. Personal preference allows for selecting different packs, but improved technology has corrected most of the negative aspects of both the internal and external pack designs.

External Frame Features:

- Excellent organizational capability
- Lightweight
- Built for large loads over distance
- Excellent ventilation
- Wide profile (prevents full arm movement)
- Built for hiking on established trails
- Load control is easy to achieve

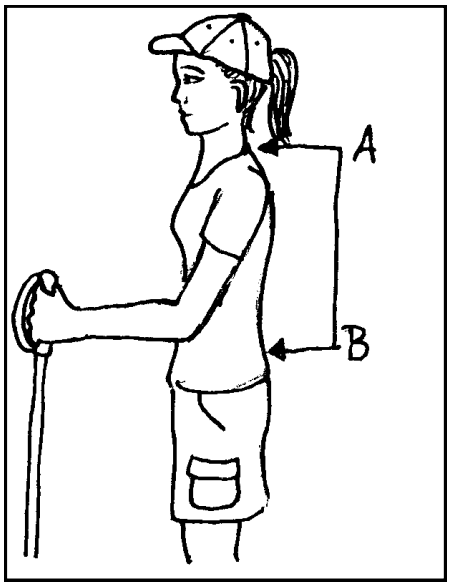
Internal Frame Features:

- Organization varies w/different models
  - More pockets = heavier
  - Less pockets & zippers = lightweight packs
- Built for large loads over distance
- Excellent ventilation and lumbar padding
- Narrow profile
- Requires compression straps for load control
- Built for on- and off-trail backpacking

Measuring for a Backpack

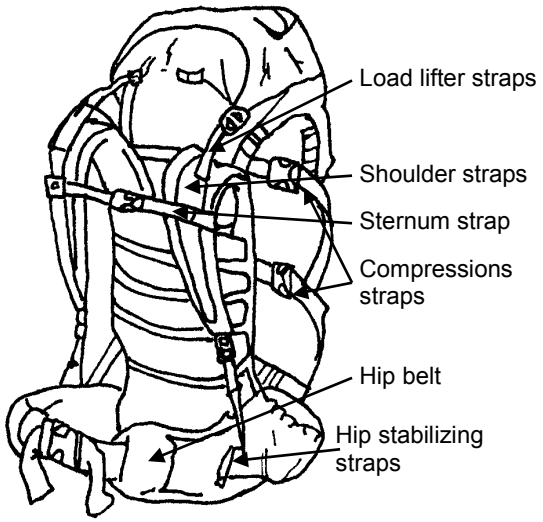
Torso measurement: one's torso length (the distance between the C-7 and the Iliac Crest) determines the size of your pack.

1. Find the most prominent vertebrae at the back of your neck (C-7). It's the large bump at about the same level as the top of your shoulders (point A).
2. Find your waist (the bottom of your elbow marks your waistline). Follow this point around in a straight line to your spine — your Iliac Crest (point B).
3. Lay a measuring tape directly against your spine, and measure the distance between points A and B.



Fitting Your BACKPACK

Always try the pack on with an experienced person helping you, before you buy, rent or borrow.



Keep in mind that a number of pack manufacturers have created pack designs to accommodate a woman's shape: curved shoulder straps and canted hip belts, for example.

First, loosen all the straps on the pack's harness.

- Load the pack with 25 - 35 pounds. Outdoor stores will often provide weights, or you can bring in your gear to make sure it fits in the pack (especially your bear canister).
- Put the pack on, place the hip belt directly over your hip bones, fasten the buckle and tighten the hip belt. The padding should wrap right around your hip bones, and leave several inches gap in front for tightening.
- Tighten the shoulder straps. They should be far enough apart that they don't squeeze your neck. The strap ends should be no more than four inches from your armpits.
- Adjust the hip stabilizing straps until comfortable.
- Adjust the top load-lifter straps to a comfortable position. They should be at about a 45-degree angle.
- You should have a 1/2 - 1-inch gap between the top of your shoulder and the shoulder strap in your *fully loaded* pack.
- Adjust sternum strap for comfort and fasten.

Finally, walk around and play with the adjustments to fine-tune the fit. A pack that fits correctly should feel like an extension of your own body. Remember that if the pack doesn't feel right in the store, it certainly won't feel right after hours on the trail.

Choosing the Right Backpack:
Keep in mind the following considerations when selecting your backpack:

- Your torso length
- Size & weight of backpack
- Capacity (3500 - 5500 cubic inches or 55-90 litres for weekend to week-long trips)
- Comfort and adjustability
- Pockets/organization
- Price
- Renting
- Extras: detachable daypack, water sleeve, hipbelt pockets

Backpacker Tip!

Putting on a loaded backpack:
Picking up a full backpack and swinging it around to your back is a good way to throw your back out. Help your buddy put her pack on by lifting it for her and holding it until she gets her arms through the shoulder straps. She can return the favor. Or, lift your pack onto a waist-high boulder, back up in front of the boulder and slide into the harness. Or, lift the pack to rest on one thigh, put your arm through one shoulder strap and ease the pack around until it rests on your back and you can slide the other arm into the harness.

Packing Your BACKPACK

Backpacker Tips!

- Keep your fleece shirt handy under the lid of your pack, or wear around your waist to protect bony hips from abrasion. For the petite girl with hip belt straps that meet too close, the fleece jacket around the hips also puts a little bulk under the straps.
- A **pack cover** is a must-have item in your pack. It needs to fit over the top of your pack and extend down to cover your sleeping bag. You can purchase a cover to fit your pack, or you can use a 45-gallon trash bag (leaf and lawn is best) for a more economical choice.
- Cover your backpack at night, or when you leave camp for the day, if there's a chance of rain.
- Deciding where to put all your gear — and still have access to what you want readily available — will become easier the more you're out on the trail.

Whether you have an external or internal frame pack, you want your sleeping bag at the bottom of your pack and your heaviest items (food, cook gear, clothing) in the main compartment. Keep the weight close to your back, nearest your center of gravity. For men this is higher; for women it tends to be a little lower. Pack fuel, 10 essentials, water filter and snacks in outside or top pockets.

Internal Frame Packing

- Sleeping bag is stuffed in bottom of pack (you can put your jacket in there, too)
- Heaviest items go in the middle (above the sleeping bag): food, especially bear canister
- Clothes are in a stuff sack, and can go on top of food
- Pots & mess kit are in a mesh bag or small stuff sack; put next to clothes
- Use stuff sacks to organize first aid kit, toilet articles, t.p., maps w/ compass, quick kit, other 10 essentials
- A pouch on your hip belt keeps items handy: sunscreen, lip block, snack, map, camera, etc.
- Sleeping pad is clipped on face of pack
- Tent body is strapped on by sleeping bag; poles slide into netting on side of pack
- Water bladder can go in sleeve in pack (designed for that purpose) or can lay across top of drift collar; some packs have holsters for water bottles

Compression straps:

You'll find these straps on stuff sacks and backpacks. They allow you to cinch your load down tight, whether it's reducing your sleeping bag to the size of a football, or pulling your pack load unto a smaller, more compact bundle next to your back. A well-compressed pack will carry the load efficiently and comfortably, allowing you to walk upright with excellent balance.

Packing Your BACKPACK cont.

External Frame Packing:

- Sleeping bag is in stuff sack and strapped to bottom of pack frame
- Sleeping pad/tent can go with sleeping bag (option 1)
- Sleeping pad or part of tent can be rolled up and slid between the top of the pack and the lid (option 2)
- Clothing fits in the bottom of pack sack
- Food/bear canister goes in top section, above clothing
- Eating kit, cook kit can go above/next to food
- Use side pockets to organize gear: first aid and emergency items, personal and toilet articles, water bottle/filter, stove and fuel
- A pouch on the hip belt is great for keeping items handy (see internal frame)
- Shove-it pocket on lid can hold maps and other readily accessible items
- Water bottle holster is also a nice add-on to your hip belt, if it's not too cumbersome. Some packs come with these. A water bladder can also be laid across the top of the pack under your tent/sleeping pad.

Tin Peddler packs: avoid the temptation to clip a lot of goodies onto your pack with metal carabiners. Metal carabiners add unnecessary weight to your pack (unless you're climbing). Use a plastic (not for climbing) carabiner to clip water, sandals, etc., to your pack, if necessary.

Backpacker Tip!

- Stuff your sleeping bag in a compression sack to reduce packing size.
- Spray your sleeping bag cover for a waterproof coating or use a water-proof stuff sack.
- The rigid frame on an external pack ensures that your pack won't need to be compressed with straps like an internal frame. However, you don't want to compromise the stability of an external pack by strapping on poorly compressed stuff sacks for your tent or sleeping bag. Always keep your load tight for maximum stability.

Checking Your BACKPACK

Pack Weight Distribution:

Dividing your group community gear and group food will allow you to distribute weighty items, helping to accommodate the smaller hikers in your group. Suggestions:

- Divide the weight of the tent among the users. If it's a 3-person tent, one person can carry the body, another can carry the rain fly and the third person carries the poles, stakes and ground cloth.
- One person can carry the tent, the other carries the cook gear and filter and some extra group dinners.
- Be flexible in whatever you do, and make sure everyone in a group carries their reasonable share.
- If you're with a large group and you have Trekking Group Gear, such as shelter tarps, extra maps, etc., divide them appropriately as regards to each person's acceptable weight limit. Trip co-leaders may want to share the weight of the group first aid kit and give the permission slips/ health history forms to the trip first aider.

The Pack Check:

Your pack is loaded and you're almost ready to go. First, you need to do a thorough pack check to be sure you leave nothing behind, and to make certain your pack isn't too heavy.

1. Pack your first day hiking clothes and boots in a bag and set aside. If you're hiking the day you drive to your trailhead, you may choose to wear these up in the car.
2. With a buddy, check your packed gear against your packing list, locating the items in your pack as you go along.
3. Weigh yourself on a scale, then put on your pack and weigh again. Subtract:
   Me & My Pack — Me = Pack Weight
4. Is your pack within your 20 - 25% weight limit? (see Appendix, Weights and Measures)
5. Note: if you weigh your pack without water, remember that you need to add two pounds for each quart you carry. Add this number to your pack weight.

Eeek! I'm Way Over!

- Take out the optional items, like a camera, books or cards. These luxuries can be shared with others in your group, and they only should be packed if weight allows.
- Weigh your food bag. Are you within the recommended guidelines? (see Appendix, Food Weight Guidelines) Reduce your food weight by discarding unnecessary packaging or re-packing your food to more appropriate serving sizes.
- Review the large, heavy items: sleeping bag, tent, jacket and outer clothing. Do you have or can you borrow/rent something lighter?
- Review your other items: can you re-package or down-size soap, contact lens solution, etc.? Can you eliminate plastic containers and use zipper lock bags?
- Depending on the availability of water on your trip, you may be able to fill just one quart of water and keep the other Nalgene empty. This will require a map and ranger station check to ascertain that water is both available and currently flowing. Be prepared to stop and filter water frequently. You don't want to conserve water!

Weights & MEASURES

A fully loaded backpack should weigh 20 - 25% of a person's body weight. That means a girl who weighs 100 pounds will have a pack that weighs no more than 25 pounds, and if she's a beginner she should try to reduce her pack to 20 pounds.

Girl Scouts recommends that girls weigh a minimum of 85 pounds before they begin the Backpacking Program so they can carry all their own gear.

What Does All My Gear Weigh?

Of course, everyone's gear weighs different amounts, but here are some ballpark weights to keep in mind. It makes sense to have your less experienced, and/or smaller girls, carry the lighter weight community gear.

Backpack External frame packs often weigh less than internal packs, especially those with lots of pockets and zippers.	4 - 8 pounds
Food How much food you carry will vary with age, gender and appetite.	1 - 2 pounds a day
Water Beginners: you will generally carry 1– 2 quarts at a time, depending on the availability of water on your route.	2 pounds/quart
Water Filter (community gear)	11 ounces
Tent (community gear) You will only be carrying part of the tent that you're sharing.	2-2.5 pounds/person
Cooking (including community gear) Stove……... Fuel…… Cook pot…… Bowl, spoon, cup/Nalgene……... Bear Canister……	 3 - 5 ounces 13 ounces/canister Varies < 12 oz. Varies < 6 oz. Varies: 1 - 2.5 lbs
Sleeping Bag Sleeping Pad (closed cell pads weigh less than self-inflating pads)	1.5 - 3 pounds 11 oz - 1.5 lb.
Clothes (per Comprehensive Gear List, not including what you're wearing)	3.5 pounds
10 Essentials (flashlight w/ batteries, map and compass, knife, whistle, first aid kit (will vary in weight), matches and firestarter.	1 - 2.5 pounds
Personal Gear	1.5 pounds

On The Other End of The Scale

Just because your weight "allows" you to carry 50 pounds doesn't mean you should treat yourself like a pack mule. A 35 pound pack will be able to accommodate a person for a full week in the Sierra wilderness.

Sleeping BAGS

Camp & Slumber Bags:

Great for a night out in the backyard, the camp or slumber bag is not right for the back country. You'll need a sleeping bag that is both lightweight and insulating, and a camp bag is neither.

Synthetic or Down Filler:

Backpacking sleeping bags are made with two different fillers: synthetic materials and goose down. Both are excellent, and each offers advantages.

- Synthetic bags: excellent insulators, even when wet; not as compressible as down; tend to be heavier than down. An excellent option in wet climates or conditions.
- Down bags: exceptionally warm for the weight, but offer no insulation when wet and are slow to dry; very compressible; can be quite lightweight. With proper care, will have a much longer life span than a synthetic bag. Packing these in a water-proofed stuff sack will ensure they stay dry.

The Outer Shell:

The outer shell is made from tightly woven nylon, polyester, microfiber, Dry-Loft or Dry-Loft knock-offs. Most shells are treated with some kind of DWR (durable water repellent). The conditions you generally hike in (wet climate, sleeping in or out of your tent, etc.) will determine how much water repellency your bag needs, with Dry-Loft and then microfiber being the most repellent.

Shape:

- Semi-rectangular bags: offer more body space; weigh more than mummy bags; have more space to heat up; quite comfortable for active sleepers.
- Mummy bags: the standard for backpackers — the narrow, tapered design is efficient and lightweight; no extra space for your body to heat and it packs down small. Not a comfortable fit for active sleepers. Women's mummy bags have more insulation at the hips and chest, and are wider through the hips.

Lengths:

Sleeping bags come in small (5'6" or shorter), medium (6' and shorter) and large lengths (over 6'). Pick a bag that accommodates your height so that you can fully snuggle into your bag. However, picking a bag that is too long leaves a dead space at the bottom that will never warm up. If you're stuck with a bag that's too long, stuff some clothes at the bottom of the sack to fill up the dead space.

Nice Features:

- Hoods: keep the head warm and often can be drawn close around the face for added warmth
- Draft collars: an adjustable neck collar that prevents cold air from drifting into the bag
- Draft tube: placed along the zipper to keep cold air from leaking into the bag
- Elastic seams: elastic in the baffle seams gives welcome stretch to mummy bags

Temperature Ratings:

All bags are sold with a temperature rating (e.g., 0 degree bag, 15 degree bag, -15 degree bag, etc.) The temperatures you are likely to encounter, as well as how warm or cold a sleeper you are, will determine the temperature rating you'd prefer. A good 3-season bag (spring, summer, fall) in California will fall between 0 - 20 degrees. For a winter bag, you might select a 0 to -20 degree bag.

Sleeping BAGS cont.

Storage:

Always store your sleeping bag unfurled, or loose in a very large cloth bag. Sleeping bags that are stored tightly compacted will lose their loft more quickly. When a bag loses its loft, it is no longer as efficient at keeping you warm.

Backpacker Tip! If you're borrowing an older bag where the temperature rating is unknown, measure the loft by placing the bag on a hard floor and allow it to self-fluff for about an hour. Measure the height with a ruler. Six inches of loft: a good 3-season bag; 4 - 5 inches: you may need some extra clothing to be warm; under 4 inches: Not Enough Loft!

Sleeping Pads:

You will need a pad under your sleeping bag to insulate you from cold coming up from the ground, and the right pad can also offer some cushion for the weary hiker. Three kinds of pads are on the market that will provide you with varying amounts of insulation and comfort.

Closed Cell Foam:

These hard pads are good insulators, but offer Princess and The Pea-type comfort. They are very lightweight (about 14 oz.) and the least expensive pads on the market. They are an outstanding choice for smaller girls and minimalists who are looking for a way to keep their pack as light as possible.

Self-inflating Pads:

The queens of comfort, these excellent insulating pads have an open-cell construction and are wrapped in airtight waterproof nylon shells. As the name suggests, they self-inflate when the air valve is opened, which is convenient. Of course, they need the air rolled out of them when it's time to pack up. They weigh a lot more than the closed-cell foam (ranging from 1#, 9 oz.-2+ pounds) and come in a range of sizes, which can help reduce weight for the shorter hiker. Care should be taken that they don't puncture, though if they spring a leak, the mattresses can be repaired in the field.

Air Pads:

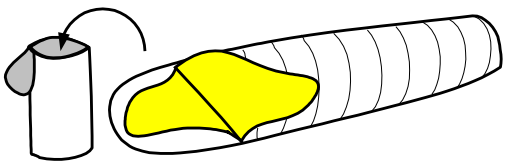
Newer on the market, these blow-up pads provide outstanding cushion, insulation comparable to a closed cell-foam pad and range from the lightest weight (13 oz.) to heavier and better insulated (2+ pounds). The lightest pad can offer significant weight savings in your pack, though the pads are pricey. They also require quite a bit of blowing to bring to full size, so take it slow at high altitude! Care should be taken that they don't puncture, though field repair is pretty straight forward.

Open Cell Foam:

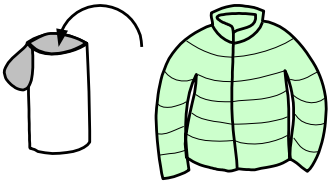
Also known as egg-crating, this padding is considered inadequate and obsolete for backpacking.

Stuff Sacks:

Nylon or silk stuff sacks come in a multitude of sizes, and can be used to organize your toiletries and store your clothes, food and sleeping bag. Compressible sacks help reduce bulk and create a tighter load. Doubling up items (tent and jacket, sleeping bag and jacket, etc.) in a stuff sack can be a good use of space. Waterproof silk stuff sacks are now quite lightweight.



Backpacker Tip! You can stuff your sleeping bag & poly/down fill jacket into one stuff sack making resourceful use of your space.



Tents

Your tent is your home in the outdoors. It will keep you warm and dry, keep the bugs at bay and shelter you from the wind. It'll also offer you a bit of privacy and security, psychological amenities often appreciated by teenagers and adults alike.

Easy Tent Terms:
The **body** is the main tent structure.
The **poles** provide the rigid skeleton that holds up the tent.
The **rain fly** covers the body and keeps rain water from seeping into your tent.
The **stakes** help secure your tent/fly to the ground, and guy out your tent for good ventilation.
The **vestibule** is the "front porch" created by the rain fly protecting an area in front of the door.

Whether you're renting or buying a tent, here are some considerations to keep in mind:

- Are you using the tent for year-round camping, including snowy conditions (4-season) or are you mainly looking for shelter from rain, wind, sun and bugs (3-season)?
- How many people will be sleeping in the tent, and how much room will they need? Two- and three-person tents all come in various widths and lengths. It's important to check the *actual dimensions* of the tent you'll be using to be certain that you and your tent partner(s) will fit inside.
- Select the lightest weight tent that meets your long-term needs.
- Always use a ground cloth to protect the floor of your tent and extend its lifetime.

3-Season Tents

- Spring, summer and fall usage
- Lightweight
- Blend of mesh and nylon
- Excellent ventilation

4-Season Tents

- Used for winter camping
- Heavier, because they use more poles for added wind resistance
- Trickier to ventilate

Tent Care

- Storage: always store your tent loosely in a large bag, or hanging open in a closet. Tents that are compacted in storage will, over time, degrade along the creases.
- Never put your tent away damp! The developing mildew will unleash the most disgusting smell imaginable, and you'll never want to sleep in that tent again. It's very difficult to remove this odor once it's taken root in your tent.
- Always wash and *thoroughly* dry your tent and ground cloth after a trip to extend its lifetime of service.

Backpacker Tips!

- Sometimes, after a night in camp, your tent, fly and ground cloth will be damp in the morning. Take it apart early and let it dry out while you have breakfast and ready your pack for departure.
- Tip before buying: check the size of the tent's vestibule. Look for a vestibule large enough to allow you to remove your rain gear before climbing into the tent.
- NEVER eat in your tent (smells bring animals looking for food) or cook in your tent (fire/carbon monoxide risks). Keep your pack and boots outside your tent.
- Buying a tent is like buying a car: do some comparison shopping before you make a purchase.

Setting Up Your TENT

Location! Location! Location!

- Leave No Trace (LNT): always try to set your tent at least 150' - 200' from water. Choose an already hardened campsite when possible, and don't situate your tent on fragile meadow grasses. Don't EVER put food in your tent! Also, don't leave scented items—like sunscreen—in your tent.

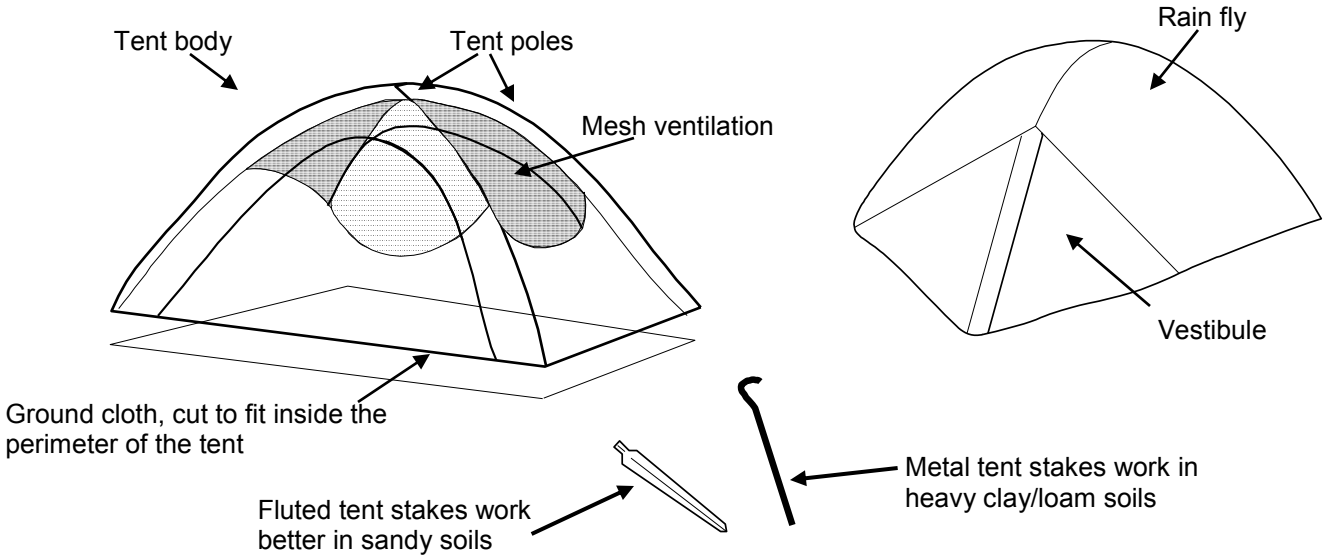
- Safety: windy mountain weather will cause dead limbs (widow makers) to fall, so look up to see that there are no dead snags in trees, or dead trees, over your potential tent site. Don't EVER light your camp stove in your tent! In addition to the fire hazard, when lit your stove will produce deadly carbon monoxide fumes.

- Comfort: clear rocks and pine cones before laying down the ground cloth. Situate your tent far enough from big boulders so that your stakes can be driven into the ground. Choose a site that meets your needs. Lots of mosquitoes? Ridges will be windy and help keep the bugs away. Cold sleeper? Cold air sinks, so situate your tent above the cold valley floors and lake basins.

- More Comfort: in high winds, or rainy weather, locate your tent behind trees or bushes for a wind break. Turn the tent door away from the wind.

- Ground Cloths: the old days of "trenching" around the perimeter of your tent are long gone (thanks to LNT). Your ground cloth will not only protect the bottom of your tent, but it will also keep water from penetrating the floor during storms. Do not let the ground cloth extend beyond the perimeter of your tent, or — contrary to your intentions — you'll wind up drawing rainwater underneath.

Backpacker Tip! Heavy rocks can be used in place of tent stakes. Guy out your tent or rain fly with nylon rope, and loop it around a heavy rock or sturdy tree. Tighten the rope until it is taut.



Water Quality and PURIFICATION

Back in the Golden Age of Backpacking (the 1970s), a thirsty hiker could dip their Sierra cup into any mountain stream and refresh themselves with an icy drink of fresh water. By the 1980s — thanks to a population boom of Golden Age backcountry hikers and ongoing grazing issues — mountain water became contaminated with a number of protozoan cysts and bacteria unfriendly to humans. The proliferation of these cysts and bacteria come as a direct result of an over-abundance of human and animal waste finding its way into the watershed. Since the '80s, it has been advisable to filter these contaminants out of our drinking and cooking water.

Water-Born Bad Guys

Giardia & Cryptosporidium: these nasty little protozoan cysts create havoc in your intestinal system for three to four months. The treatment is antibiotics.

Bacteria: E. Coli is the bacteria that most concerns hikers.

Viruses: Hepatitis A is not a concern for hikers in the US and Canada, but is more of an issue in developing countries.

Purifying or Filtering?

Filtering water removes cysts and bacteria.
Purifying water removes cysts and bacteria, and also kills viruses.
In the US and Canada, filtering your water is completely adequate.

Methods of Purifying/Filtering Your Water (see Water Treatment Methods, next page)

- Boiling — purifies your water
- Chemicals (Iodine and chlorine tablets) — purifies your water, but Crypto requires four hours of treatment before the water's potable
- 0.2 Micron Filters (e.g., Katadyn Hiker or MSR Sweetwater) — effectively filters out cysts and bacteria
- Purifiers — filters and purifies your water
- Steri-Pen (UV Light Rays) — purifies water
- Electrolysis — similar to chemicals, it purifies the water but takes four hours to kill Crypto

Before you purchase a filter:

Consider comfort and ease of use in the field, how many gallons each filter cartridge can pump before clogging, and the replacement cost of the cartridge. Also consider the yield of each pumping stroke: some filters yield more water per stroke, allowing you to filter your water with less pumping.

Selecting Safe Water

- Check to see that you aren't pumping water from a source that has heavy animal or human impact.
- Pump from still, clear water to avoid sediment clogging your filter.
- If you must use snow as a water source, melt ice (higher water content) before you melt snow. Don't use discolored snow (red/pink snow has an algae bloom).

Water Treatment METHODS

	Kills Cysts	Kills Bacteria	Kills Viruses
Boiling ($ fuel)	yes	yes	yes
Pros:	*lightweight *completely effective	Cons:	*uses fuel *takes time *sediment
Chemicals ($6 - 12)	Only Giardia	yes	yes
Pros:	*lightweight *excellent backup	Cons:	*icky taste *no crypto *health *takes time
0.2 Micron Filters ($80 - 90)	yes	yes	no
Pros:	*completely effective in U.S & Canada	Cons:	*11 - 14 oz. weight *replacement cartridge $40
Purifiers ($100+)	yes	yes	yes
Pros:	*effective worldwide	Cons:	*expensive *weight *overkill for our purposes
Steri-Pen ($70-120)	yes	yes	yes
Pros:	*kills everything *very lightweight *fast, no pumping	Cons:	*requires pre-filtering *hard bottle only *fragile
MSR Miox ($140)	yes	yes	yes
Pros:	*kills everything *very lightweight	Cons:	*takes time *4-hour crypto *elaborate procedure

Backpacker Tips!

- Some water filters made for home use are also 0.2 micron. These drip systems have no moving parts to break, and even though they are bulky, they make a good backup to mechanical pump filters.
- Always keep an emergency stash of chemical tablets in your emergency kit as a back up. Perhaps your filter is irreparably broken, or an evacuation crew needs to peel off the main group and needs to travel fast and light to initiate a rescue.

Water RECEPTACLES

Bottles, Bladders, Buckets & Bags:

Each person should have a minimum two-quart carrying capacity, regardless of the type of receptacle you choose to use.

- Nalgene bottles are practically indestructible, and give you a means of measuring water to cook, since they generally have ounce and cup gradation lines.
- Hydration systems (water bladders) are excellent for easy and continual access to your water. These are also nice for extra potable water storage in camp. The risk of leaks is higher than for Nalgene bottles. Also, carry a spare mouthpiece (preferably with a locking mechanism) in your emergency kit.
- Collapsible buckets are appreciated if you have campfires in camp, or care to bathe on a several day trip.
- Collapsible water bags allow you to keep a large supply of water in your camp for drinking (if it's filtered) or washing (unfiltered water okay). Water bladders serve this purpose nicely, but if you use Nalgene bottles, you might find a water bag convenient.

Backpacker Tips!

Make a Bucket

- You can make a lightweight little wash bucket very easily. Cut a clean, large, plastic bottle (bleach, 409 Cleaner, etc.) in half, and use the bottom half as a bucket for a sponge bath, washing clothes or dishes.
- A Gladware brand bowl makes an excellent ready-to-pack wash bucket.
- Large zipper lock bags make excellent lightweight water receptacles for camp use. Double bagged, they can also be useful when packing water into a dry camp. This should be done carefully: be sure your clothes and sleeping bag are protected in trash bags in case of a leak, and remember that water is heavy (two pounds a quart). Be aware that water bags in your pack create undistributed weight, and you'll feel that dead weight when you carry it.

The Backpacker's KITCHEN

Meal time in the back country should be a pleasant time combining camaraderie and good food. Your cooking equipment should be simple, effective and lightweight. Your fuel should be easy and safe to use. And your food should fuel your body for high exertion, and be tasty, too.

Fires:

The use of fire is very limited in the back country, and brings up ethical questions of burning downed wood necessary for soil enrichment. If you choose to make a fire for cooking, know the rules for the area you're traveling through, and plan your meals and equipment accordingly.

- Using a lightweight collapsible grill is helpful when cooking on an open campfire. Each grill can hold two pots, so two cook groups can share the fire.
- Make or buy a cloth sack to hold the sooty grill in your backpack.
- Paper can be collected for starting your fire, or add a small piece of fire starter to your kitchen kit.
- Only used downed wood for campfires, keep the fire small and use an existing fire ring to avoid scarring unblemished rocks.

Stoves:

Girl Scouts only permits using canister propane/butane fuel. Do not use refillable liquid fuels such as white gas. Canister fuel is easy to use, and completely adequate down to freezing temperatures and elevations below approximately 12,000'. Liquid fuel canisters are heavier, and are excellent for colder temperatures and higher altitudes.

Before buying a stove:

- Look for a stove that's easy to attach to the canister.
- Be sure the fuel canisters are widely available (you cannot ship fuel by mail, ferry or air).
- The fuel must be able to be disassembled from the stove between uses.
- Look for stability: a wide base and a low profile.
- You want an on-off knob that is easy to turn.
- The stove should be lightweight and compact, ideally fitting inside your pot for storage.
- Self-lighting is nice but not necessary. Always have matches/lighter to guard against the day the igniter fails or wears out.

Kitchen safety:

Fuel, matches, flames, knives, boiling water—the camp kitchen is probably the most dangerous place in the wilderness. Follow these safety tips:

1. Keep a safety zone around the stove. Walk around the zone to retrieve water, bear canister, etc., never step across the stove, even though it's the quickest route.
2. Pay attention: the stove is hot, the water is boiling. Spilling a pot of boiling water in your lap requires an immediate evacuation.
3. Bomb-free kitchen: if you use a wind screen with your stove, remember that it must be open to one side to prevent heat from building up in the fuel canister.
4. Wash hands before you cook. Sounds basic, but hygiene can often take a back seat after several days in the woods. More backpacker stomach upsets are caused by poor wilderness hygiene than water-born pathogens.
5. Tie the hair back and out of the way.
6. Backpacking fabrics: remember that your fleece, mosquito netting or water-proof jacket is made of plastic materials. These can melt.
7. Never light a stove inside your tent. Aside from the fire hazard, deadly carbon monoxide fumes will build up in an enclosed area.

Backpacker Tips!

- Some stove-pot combinations have only a 2 - 3 cup capacity (for two people) and won't work with a larger pot.
- Ideal cook group size is 4 - 5 people.
- If temperatures drop below freezing, and you lose fuel efficiency or have a sputtering flame, wrap a wool sock around the fuel canister.

Food PLANNING

How well you eat in the back country depends on how much time and effort you're willing to devote to the job. Above all, your food should be excellent fuel. Some backpackers go no further in their interpretation of menu planning; they're not out there for the food. Others take great pride in preparing nutritious *and* tasty meals, troubling to whip up a dinner of homemade fettuccine alfredo or Indian lentils. These people make excellent hiking partners!

Food preparation at a glance:

1. Determine your cooking group members.
2. Make food allergies and preferences known (vegetarian, kosher, etc.).
3. Plan your food with both a menu planner and a copy of your trip itinerary in front of you.
4. Select foods — with carbohydrates and protein, fruit and veggies, drinks, trail snacks/ desserts.
5. Divide the food list; purchase food.
6. Measure, pre-package and *re-package* your food.
7. Are you using a bear canister or food bag (cache)?
8. Distribute food among your cook group members.

Backpacker Tips!

Food Packaging

- Re-package your food to a serving size/meal size using zipper lock baggies. Throw out the original bulky packaging (cardboard boxes, etc.) but don't forget to write down or clip the directions from the boxes first!
- Protect delicate crackers. Ritz crackers exactly fit inside empty Crystal Light tubes.
- Peanut butter can be carried in a purchased Gerry tube, or a double zipper lock bag.
- Foil pouch meats are tasty, provide essential protein and the trash is lightweight and easy to pack out.

Bear Canister

Bear-proof canisters are required in many jurisdictions, and offer complete food protection. A can will hold about seven days (Garcia Machine) or eight days (Bear Vault) of food.

Store your canister away from your sleeping area and rushing water or cliffs, so you don't lose your canister if a bear fools with it.

Packing a bear can requires patience, and re-packaging food is essential, but storing your crackers around the edges will prevent them from smashing.

Label each can and lid with its owner's name. If you're purchasing, consider a half-sized can (five-days) for a petite hiker with a small capacity pack. Always check that your bear canister fits in the pack you purchase or rent.

Food Bag (Cache)

You'll need two stuff sacks and 100' of rope for hanging the bag. Tie a rock on the end of the rope (or in a bandana tied onto the rope) and hurl the rock over a tree limb away from your sleeping area.

You can counter balance a couple food bags from each end of the rope, securing them to the line with a bite knot, or even easier, a small carabiner. Your food should be several feet off the ground and away from the tree trunk. This method DOES NOT work in bear country.

Food Planning & MENUS

Many a backpacker has survived on Top Ramen noodles, mac & cheese and instant oatmeal, but a world of tasty and nutritious menus awaits the person with a little creativity and a good appetite. Your food is your fuel: it should fill you up, provide you with energy, help build body strength, provide proper nutrition and — perhaps as a bonus — taste great!

Nutrition

Carbohydrates: gives your body energy
Examples: grains, rice, cereal, (instant) potatoes, pasta/noodles, veggies (peas, green beans, corn, carrots), dried fruits, granola, bagels, crackers, tortillas, pretzels…
How much? Carbs should make up about 60% of your backpacking diet.

Proteins: help build tissue (like muscle-building and repair)
Examples: meats (jerky, bacon, salami, foil pouch or dehydrated chicken, beef, fish), beans, eggs, milk, tofu, soy, peanut butter, nuts, protein bars, lentils…
How much? Proteins should make up about 10% of your diet.

Fats: help insulate and pad body, stores energy
Examples: cheese, oils, meat, margarine, chocolate, cookies, pudding, nuts…
How much? Fats should make up about 30% of your diet.

Breakfast Ideas
Oatmeal w/ dried fruit and nuts
Cream of Wheat
Grits
Power/protein bars
Eggs
Burritos
Bacon

Lunch Ideas
Crackers, pita bread, rice cakes, pretzels
Foil tuna, chicken, salmon, jerky, salami
Peanut butter, hummus
String cheese, cheddar cheese, individual cream cheese
Dried fruit
GORP (mixed nuts, dried fruit, M & Ms, granola, etc.)

Beverages: instant cocoa, coffee (singles or espresso powder), cider, tea, mocha (espresso powder and cocoa), Tang, E-Mergen-C, other electrolyte replacement drinks, Gatorade

Dinner Ideas
Angel hair pasta w/ spaghetti sauce
Tortellini w/ pesto or alfredo sauce
Rice, bean and chicken burritos
Quesadillas
Soup
Instant potatoes
Frito Pie (Fritos w/ chili)
Red beans & rice w/ salami
Thai chicken & noodles with peanut sauce
Risotto and veggies
Indian lentils, palak paneer and basmati rice

Backpacker Tips!

- For quick starts, plan breakfast using only hot water.
- It's sometimes hard to eat a large breakfast, so bring some foods that can be eaten easily on the trail.
- Pancakes, eggs, muffins, etc., take time to cook and are only for layover or late start mornings.
- Plan on cold lunches.
- Breakfast and lunch are best planned individually, while dinners are excellent group meals.
- Appetites are often suppressed by high altitude. Light soup or rice based dishes are often more appealing than heavy food.

Planning Group MEALS

Allergies and Food Preferences

Before you plan what's for dinner, your group needs to know what is *not* for dinner. Food allergies need to be taken into consideration, as well as diet restrictions (kosher, vegetarian, vegan, etc.). It's also important to let others in your group know if there are any foods you just can't bear to see on your plate.

Planning The Menu

Plan your menus with both a daily menu planner and a copy of your itinerary in front of you. Select meals that are appealing to your entire group. Once you've decided what your trip dinners will be, go back and determine who is going to bring which dinner, or even which part of dinner. Some people find it easiest to plan and bring an entire meal, while others like to contribute to a meal "potluck" style.

Whichever your style, remember to distribute all of your group meals so that the overall weight is divided fairly among your cooking buddies. One person should keep a "master list" of all the meals, and who's bringing what, just in case a person has to drop out of the trip. Finally, keep your cooking times as low as possible, and if you're splurging on meals that require lengthy cooking, take that into consideration when you buy your stove fuel.

Packing Your Food

Measure, pre-package and *re-package* your food to reduce food weight and keep your food organized. For example, don't just bring the box of angel hair pasta. Measure out how much you need for your group, break it up to reduce its size and store it in a zipper lock bag. Now it is smaller and weighs less than the original packaging, and you won't have to deliberate what to do with all the leftovers.
Handy hint: always remember to write your cooking directions on the meal bags!

Vegetarians

It's easy for meat eaters to accommodate a vegetarian within their cooking group. Most meals can be prepared first with the meat as a side dish, the vegetarian served, then the meat added for the rest of the crowd.

Dehydrating Food

Using a dehydrator to dry your food is very rewarding and opens up great vistas in food variety. Fruits, veggies, sauces, meats, rice, salsa — all dehydrate (and rehydrate) really well. It's helpful to read up on dehydrating before you start. Foods that are dried properly will last up to six months in your pantry, allowing you to dry foods well in advance of your trips.

Rehydrating Food

Your dried food can often be rehydrated right in its storage bag, saving on clean up. To help keep it warm while you wait, drop the bag into your bear canister while it rehydrates.

Ready-Made Backpacking Food

Many backpackers rely on the freeze-dried foil pouch dinners available at outdoor stores. They are lightweight and easy to prepare, but not so easy on the budget. They sure don't taste like home cooking! Grocery store foods are often less expensive, and more gratifying to the palate.
Suggestion: sample some backpacking dinners at home before taking them on a trip.

Meal Planning TEMPLATE

	Saturday	Sunday	Monday
Breakfast			
Lunch			
Dinner			
Snacks Drinks			
Ingredients Utensils			
Who's Bringing What?			

Don't forget hot beverages, trail snacks and possibly powdered drinks for your water bottle, like Gatorade or those E-Mergen-Cs. Desserts are also fun. Plan on cold lunches, unless you want to break out your stoves mid-day. Plan an additional emergency meal back-up (something small and lightweight like soup & potatoes makes a great back-up).

ADVANCED TRIP FOOD PACKAGING

Once you start backpacking on longer trips, you need to take some considerations with your food, and its weight and storage. If you're traveling in bear country you will need to store your food, trash, and any items with a scent (sunscreen, lip block, toothpaste, etc.) in a bear canister. If bears aren't part of the local fauna, you'll be able to hang your food off the ground in a stuff sack, keeping it out of reach of raccoons, squirrels and other furry woodland creatures.

Whether you use a bear canister or a stuff sack, here's what you need to keep in mind:

- Re-package your food so it isn't bulky. Re-packed into a freezer zip-top bag, your food will take up less space, and you won't be carrying the excess weight of cartons and wrappers. You can even re-hydrate your food inside a freezer zip-top bag, saving on fuel consumption.
- Itemize your food using zip-top bags of assorted sizes. For example, instead of bringing a gallon size bag of GORP, portion out each day's worth of GORP into smaller bags. This prevents you from taking more food than you need, and helps keep your pack weight down.
- At home in your kitchen, lay out your food/snacks/drinks for each day of your trip so you know you have exactly the right amount of food. Include an emergency meal, and a few 'just-in-case' energy bars. This keeps you from forgetting important meal components, and prevents you from weighing down your pack with too much food.
- Some people like to store each day's food in a gallon size zip-top bag, using the bag for that meal's trash.
- Some people prefer to spread the weight of the meal around each cook group; one person carries the tortillas, another the cheese, and another the beans and rice. This allows the food weight remaining in your pack to be reduced somewhat equally among your cook group.
- Ultimately, distribute your food so everyone loses pack weight evenly, and the person with the least "weight room' in their pack carries the first meals.
- It's very handy to write your meals — and it's components — on a 3 x 5 card and keep that in with your food.

Hanging Your Food in a Stuff Sack

- In areas with habituated bears, chances are you will not be able to hang your food. However, there still are places in the Sierras where hanging is allowed, so you will want to utilize the counter-balance method described on page 26.
- If you're merely keeping your food away from rodents and squirrels you want to hang the food stuff sack several feet above the ground and a few feet away from the trunk of the tree on a sturdy branch. If you're in raccoon country you might consider throwing a line over a high branch and clipping a few bags on the end with a carabiner. Pull the bags up high (about 5 or 6 feet, and several feet away from the trunk of the tree) and secure the other end of the rope on a branch.

Bear Canister Tips:

- Some people like to layer their food in their canister, so the last meal is on the bottom. Others are more spontaneous with their meals and enjoy pawing through their bear can while dinner cooks, choosing the next day's food and putting that on top.
- Line the edges of the bear canister with the more fragile foods, and put the durable foods in the center as you layer it in. Then you can push down on the center foods to make more space without crushing your crackers.
- Leave room at the top for scented items like toothpaste and sunscreen.
- Don't pack the first day's food in your bear can.
- Check with the ranger in advance to find out if there are bear lockers in the back country where you're headed (like in Sequoia). This allows a little 'grace period' at first to store excess food.

Wilderness SANITATION

Even in the backcountry, one can maintain a certain amount of cleanliness. Good hygiene is important for health reasons, excellent morale, a sense of well-being — and your tent partner will certainly appreciate your efforts as well.

The Basics: Going to the Bathroom

You'll need: hygiene kit (t.p., trash bag, possibly a trowel and feminine supplies, a buddy and a sense of humor).

Choose a suitable location: at least 150 - 200 feet from a water source. For best privacy, head out perpendicular to the trail, avoid upcoming trail junctions and areas where the trail switchbacks. *Always* tell a buddy that you're leaving the trail or camp for a bathroom break.

Bury human waste in a cat hole 6 - 8 inches deep; pack out *all* trash, including used feminine supplies.

Wash up: always take a minute to wash your hands afterwards. Carrying a tiny bottle of Campsuds in your hygiene kit makes washing up convenient, and ensures the kind of good hygiene that keeps you healthy throughout your trip.

Personal Hygiene

You'll need: biodegradable soap, bandana or a highly absorbent pack cloth (such as a HandiWipe,) your lightweight camp/wash bucket, travel-sized deodorant, wipes.

At the end of each day, rinse the sweat and dust off your body. If you plan to use biodegradable soap, use a bucket to transport water at least 150 feet from the water source before you start cleaning up. Simply rinsing the dirt, sweat and sunscreen off yourself at the end of the day will keep your body warmer at night; soap will actually make you smell better.

Deodorant and wipes are nice little extras that keep the morale a little higher. Of course, you'll pack out all used wipes. Washing your hair (bucket, soap and 150 feet from water) every few days is wonderfully refreshing. Washing clothes (same procedure as washing hair) makes them far easier to put on the next day (see Laundry, page 10).

Camp Waste

Leave No Trace: always pack out *all* camp trash. In bear country, do not bury leftover food. Pick up any small bits that fall in your cooking area, put them in your trash bag and secure in your bear canister.

Safety Management

Permit & Ranger Station QUESTIONS

The ranger station is an excellent resource for trip information. You want to take every opportunity to learn more about the area you're hiking through before you step onto the trail. Most of what you know about trails and campsites may have come from maps, books or computer software, which can be outdated. Trail and weather conditions continually change, and animal presence and behavior also changes. You need current and relevant information.

Permits:

You almost always will need a permit for overnight camping. Some are free, while others carry a fee. Each jurisdiction will have its own regulations, and applying for a permit is your first opportunity to become acquainted with the area's restrictions and rules. When possible, reserve your permit well in advance to ensure space availability.

On your permit request form, you will include information about your trailhead and exit, planned itinerary and projected campsites. Your group size cannot exceed the area's limit (usually 12 to 15 people). You'll receive either a permit or confirmation in the mail — hang on to it! You'll want to leave the agency's phone number with your in-town contact, and you'll need to show the confirmation slip at the ranger station to sign and receive your actual permit.

At the Ranger Station:

You always check in with the desk ranger even if you've already got your permit. You want to ask a number of questions to verify key information.

1. Review your permit information with the ranger — often they will initiate this process for you. Review your trailhead, exit point, planned itinerary, group size and area regulations.
2. Campfires: you want to know if they are allowed, and what restrictions apply.
3. Trails: confirm that the trails you plan to use are open and unobstructed.
4. Stream crossings: confirm the depth and swiftness of your expected water crossings.
5. High passes: ask about the presence of late-season snow.
6. Water: double check that creeks are flowing and water is available at your trailhead and campsites.
7. Animals: ask about the presence and current activity of bears and/or mountain lions. You want to know if your planned food storage is adequate, or if there are provisions for food storage (bear/ animal-proof food lockers). Your permit confirmation letter will often include bear canister information if they are required in that area.

Backpacker Tip!

Studying your trail maps in advance of your trip is essential for good communication with the ranger. You will know which stream crossings to ask about, which passes might be obstructed from late-season snow and which water sources you are counting on to be flowing.

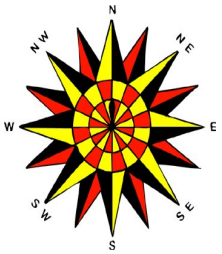
Topographical MAPS

It is essential that one develops superior map-reading skills to be an effective navigator in the back country. Once you can effectively interpret a topographical map, your compass becomes a far more valuable tool, offering you the necessary precision to travel far and wide.

Basic Map Interpretation

Here's how to interpret the valuable information you can find on your topo map.

Compass Points:



The top of your map is: North
The right side of your map is: East
The left side of your map is: West
The bottom of your map is: South

Colors:

Blue: water (variations include seasonal streams/ponds, glaciers, swamp, waterfalls, etc.)
Green: vegetation (chaparral, forest)
White: landscape without trees or water (rock, sand, meadow)
Black: man-made features
Red: primary and secondary roads; land survey marks
Brown: contour lines

Contour Lines:

- Contour Lines: the brown lines on your topo indicate the elevation above sea level. Think of each line as a closed loop. If you followed the line in the real world, you wouldn't go uphill or downhill; you would stay at the same elevation. Contour lines allow you to interpret the terrain. Lines that are close together represent quick elevation changes—steep terrain. Contour lines that are farther apart indicate less elevation differences—flatter terrain. Contour lines also show you the shape of the terrain: ridges, peaks, plateaus, gullies, etc.
- Contour Interval: the distance between each line is indicted on the bottom of your map, near the scale of miles. On a 7.5 minute topo, which provides the best detail for hikers, the interval will be 40 feet or 20 meters.
- Index Line: this thicker, dark brown contour line measures increments of 200 feet (or 100 meters) on a 7.5 minute map.

Scale of Miles:

This ruler measurement is found at the bottom center of your topo map, and will give you a way to measure distance. Here are two ways to figure out how far you're going to hike (or, "how much farther till we get back"?!) using your scale of miles.

- String trick: use the string from your compass (or your croakie). Wind the string along the trail on your map to cover the distance you'll be traveling. Compare the length of string you measured on the map to the scale of miles and *viola*—there's the mileage.
- Using your pinkie: this is much less precise than the string trick, but can give you a ballpark estimate. Measure your pinkie finger against the scale of miles—note where the mile marker compares against your pinkie. Move your pinkie along the trail on the map to get a very broad estimate of the distance you'll be traveling.

Conquering Map SKILLS

Learning to read topo maps, and to be able to interact with the information on the map, is really rewarding. Nothing gives you a sense of self-sufficiency like being able to navigate accurately through the wilderness using your map and compass. Map reading and navigating by compass aren't difficult skills, but it takes practice and familiarity to develop your skills.

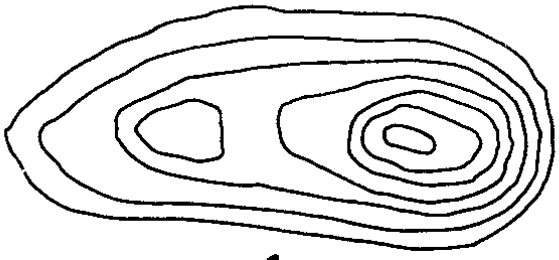
At Home

- **The 3-D effect:** learn to see mountains and valleys, stream beds, ridges, passes and other physical features by studying topo maps in the comfort of your living room. Maps drawn with shade-relief make this skill easier to learn.
- **Pre-planning your trip:** topo maps and guide book in hand, you can excel at planning and preparing for your trip (LNT). Studying your maps ahead of time let's you develop a reasonable travel itinerary that works for your entire group.
  - Highlight your trail/route in a bright color
  - Observe the elevation gains and losses on your route
  - Measure distances using a string (following your route) and measuring against the scale of miles found at the bottom of the map (or baseplate compass edge)
  - Note any obstacles on your route: stream crossings (high water?), high passes (lingering snow?), steep terrain
  - Base your itinerary on this information and plan your meals and gear accordingly. Will you want water crossing shoes? Need a cold breakfast one morning to accommodate an alpine start before climbing a nearby peak?

In the Field

- **Orient Your Map:** when you arrive at the trailhead, or at the start of each hiking day, always take time to sit down and orient your map to magnetic north. By aligning your map with the real world, you will be able to look around you and see the local landscape featured on your map. Both on the map and in your field of vision, find your location and note nearby features like trails, streams, lakes and ridges and peaks. Consider other nearby features on your map that you can't see right now (a nearby lake, for example) and point in the direction your would have to go in order to get there. This kind of stationary interaction with your map builds outstanding navigational skills, and gives you an accurate sense of where you are, what you see on the map and what you see in the real world.
- **Thumb the Map:** keep your topo handy and refer to it frequently throughout the day. The more time you spend looking at your map and noting your progress, the savvier you will be in map-reading. As a trip leader, periodically make sure your whole group can point to where they are. A good time to check is at the trailhead, trail junctions and significant landmarks such as creek crossing, passes, peaks and campsites.
- **Play With Your Map:** take out your map and compass at rest stops and lunch and spend a little time orienting your map and taking bearings on various landmarks around you.
- **Follow a Handrail:** a handrail is an orienteering term for any long feature (natural or man-made) that you can follow to your destination, or that will head you off and stop your forward direction. Good examples are creeks, canyons, trails, roads, ridges—you can follow any of these features to reach your destination or any one of these features can cross your path and alert you to a desired change in direction.

Contour Line WORKSHEET



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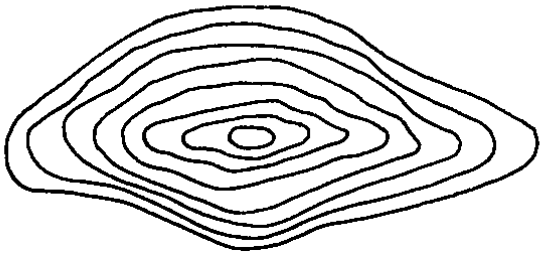

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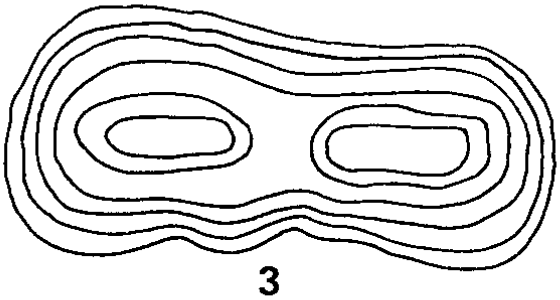

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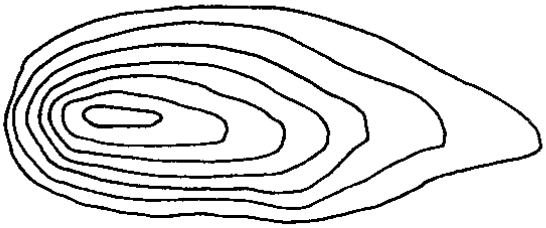

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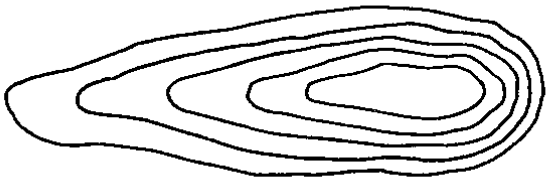

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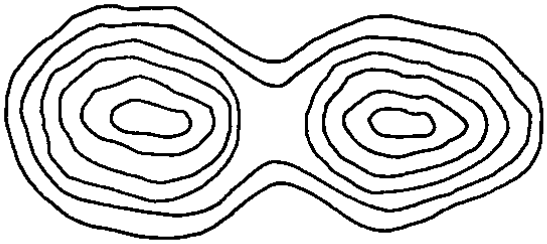

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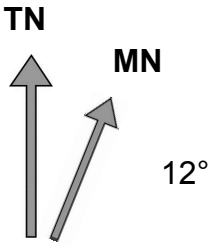
F

Understanding Magnetic NORTH

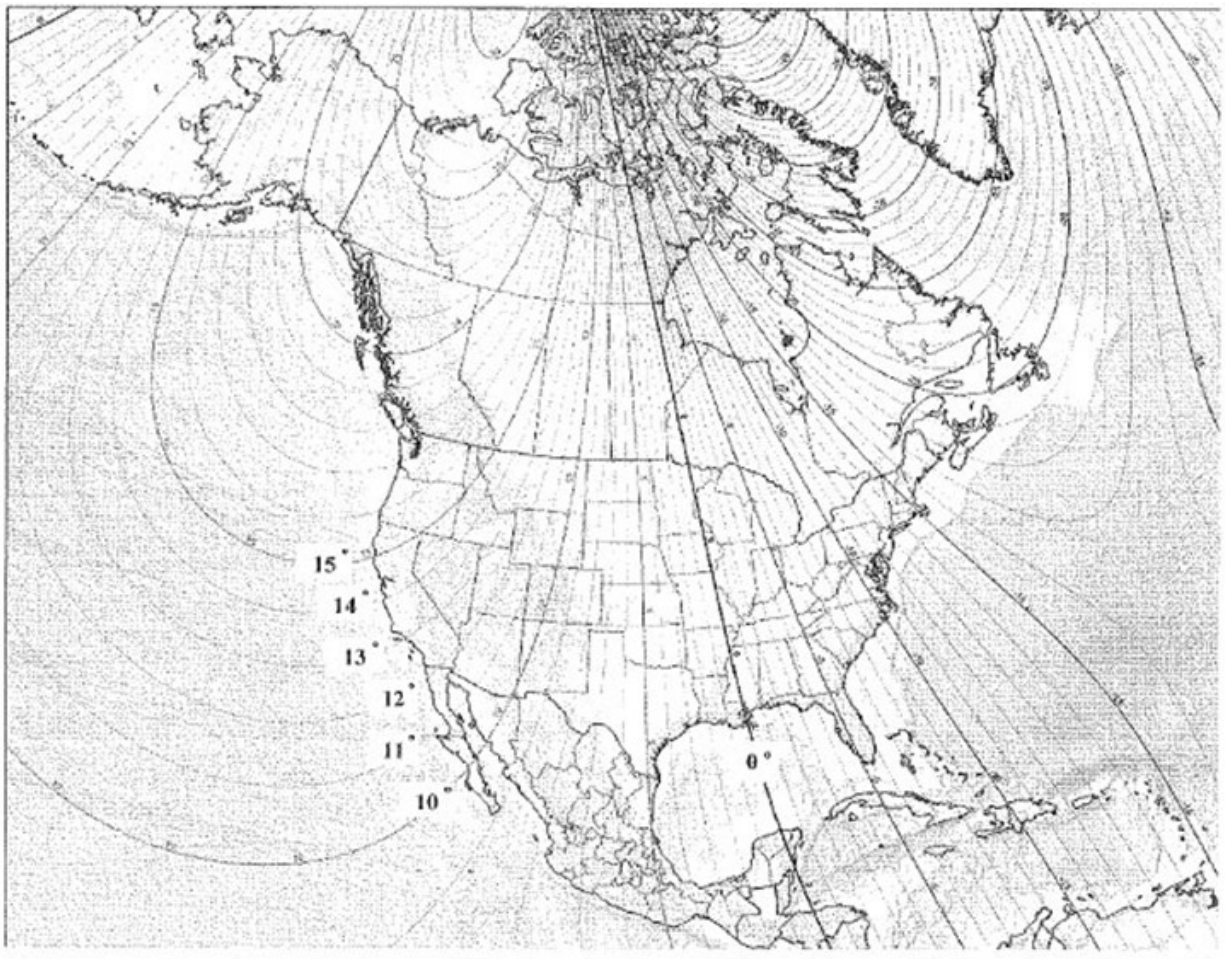
True North is located at the top of your topo map. Your red, magnetic compass needle, however, points to Magnetic North, a shifting location up in the Arctic Circle. In order to navigate accurately with a compass, it's important to understand—and correct for—the difference between the two points.

Declination

This is the difference between True North (the top of your map) and Magnetic North (the pull of your compass' magnetic needle). The declination is drawn with an angle on the lower left corner of your topo map. Because your compass is influenced by the magnetic pull of the earth, you need to adjust for this angle when you are taking bearings off your map.



Magnetic Declination in North America

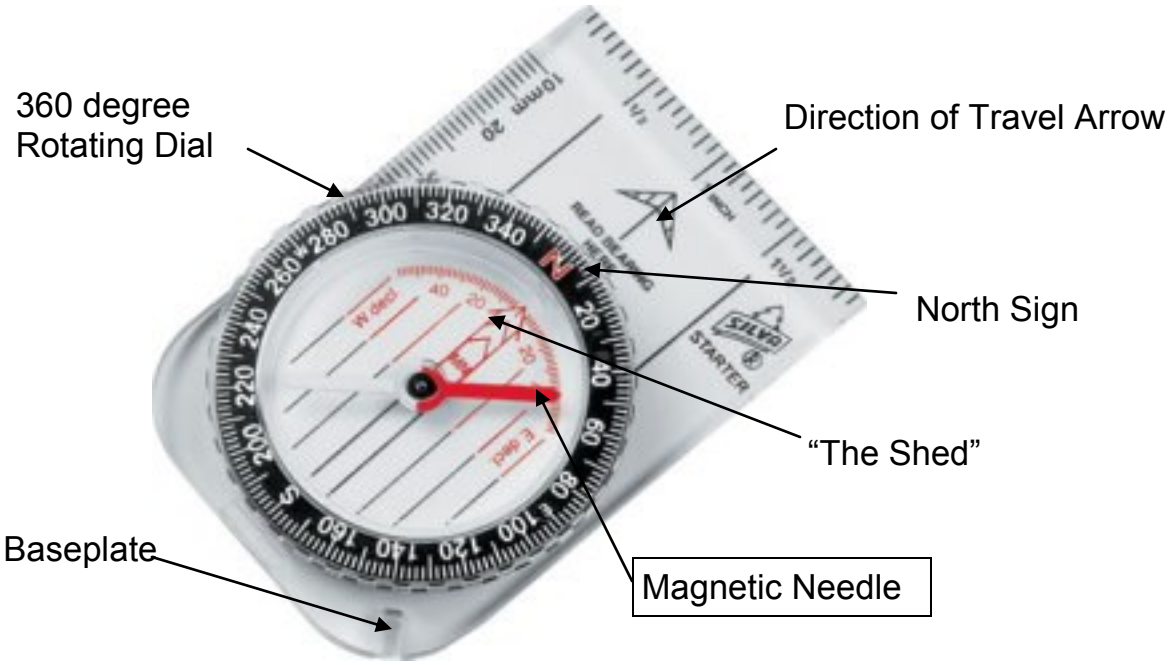


Adjusting your compass for magnetic declination...Easy as 1, 2, 3!
In California:

1. Set your map on the ground.
2. Set your compass dial to North, or 0 degrees, then subtract the declination (located bottom left of your topo).
3. Line up the edge of your compass along the edge of your map. (The direction of travel arrow must point to the top of your map—north). Rotate the map and compass *together* until "red's in the shed."

Now your map is aligned with the real world and your bearings will be accurate.

Parts of a COMPASS



The Big Question???

Q. Why is it important for your map to be oriented to Magnetic North?

A. Because your compass is influenced by the magnetic pull of the earth. The compass needle is pulled toward Magnetic North, but your map is oriented to True North. If you don't correct this, your navigation will be off by 12 degrees (in San Diego).

Orienting Your Map to Magnetic North 12 (San Diego Declination)

1. Set map on the ground.
2. Subtract 12 degrees from North (that's rotating your compass dial to 348 North).
3. Align the edge of the baseplate with the edge of your topo. The Direction of Travel Arrow must point to the top of your map (North). Now, move the map and compass together until the red Magnetic Needle is floating in "the shed."

Your topo map is now oriented to Magnetic North.

Compass SKILLS

Handler's Tips:

- When using a compass, keep the compass pointing perpendicular to your body.
- Always make sure the Direction of Travel Arrow is pointing *away* from you, or all your bearings and directions will be backwards.
- Remember, your compass responds to magnetic forces. You can get false readings if you are working over metal (campsite tables are a regular culprit).

Compass Vernacular & How-To:

- **Bearings:** a bearing is a compass direction. You can follow a bearing, take a bearing from a topo map and take a bearing in the field. By taking a bearing off your map, you are pulling travel directions off the map and loading that onto your compass. You can follow that bearing to whatever point of interest you care to reach, using your map to interpret the terrain along the way.

    - **To take a bearing in the field**, point the Direction of Travel Arrow on your compass toward a pint of interest, such as a peak. Rotate the dial and put the "red in the shed." The resulting number at the top of your compass is your bearing.
    - **To take a bearing from your map**, first orient your map to magnetic north. Align the side of your compass 2 points of interest, for example, your location and Mt. Spencer. Your location is at the bottom edge of your compass and Mt. Spencer is at the travel arrow end of your compass. Put "red in the shed" and the resulting number at the top of the compass is your bearing.
    - **Follow a bearing:** a more advanced skill and most easily learned in open terrain (above treeline, for example) this is using the bearing as a destination. Once you've taken a bearing off your topo, you can follow it to your destination. Say you're at Muir Lake and you've got the bearing to nearby Cottonwood Lake #1 on your compass. Stand up, put "red in the shed," and look where your travel arrow is pointing. If you can sight a big feature, say a peak in the background, you can put down your compass and just follow a logical route toward that peak, knowing that you'll arrive at Cottonwood Lake between your starting point and the peak. If you don't have a big feature to use as a marker, then you will sight on something closer. When you reach that point, you will sight again on a farther location, repeating this step until you reach your destination.

- **Triangulation:** this allows you to determine your location by taking bearings—and drawing corresponding lines on your map—from two prominent landmarks, then finding the intersecting point—you! Another variation is to take a bearing off a known peak and intersect it with your trail. The intersecting point is your location.

Backpacker Tip!

- Recommended reading: "*Be Expert With Map & Compass*" by Bjorn Hjellstrom. This outstanding "how-to" handbook will give you plenty of support as you learn to use a map and compass more effectively.
- GPS units are valuable navigating tools, but they don't replace the need for a map and compass. Your ability to read a map and use a compass will never depend on battery life or satellite reception. Also, a full-sized 7.5 minute topo map allows you to see the big picture when you're in the back country.
- Every person in your hiking group should have their own trail map. The Tom Harrison maps usually cover a larger area and include mileage. As a group, you should invest in one or two copies of all the 7.5 topos that cover your trip. A 7.5 minute map allows for the best precision in navigation.

Lost and FOUND

Preparation is the key to staying found

The Map:

Always review your map with your party before you leave. Every person in your group should be able to locate their position at the trailhead and at each trail junction. Your map should be as close as your nearest pocket. Thumb the map as you hike, and continually take note of obvious landmarks: stream crossings, passes, lakes, peaks, trail junctions. Always re-group at trail junctions. Stay on the trails and obey posted signs.

The 10 Essentials +Extras:

Every time you leave camp you should have your 10 Essentials +Extras.

The Permit:

See page 32

The In-Town Contact:

Always leave your itinerary, copy of highlighted map, group information *and* your gear list with a responsible person at home. Write down the phone number for the ranger station at the top of your itinerary. Tell your in-town contact when you expect to be out of the back country, and make a point of calling them as soon as you are out.

Backpacker Tip!

If you are returning by the same trail, turn around and take a mental picture of the returning route. Check the scene at junctions and landmarks along the way. This works for finding your car in the parking lot, too!

The Location of Help:

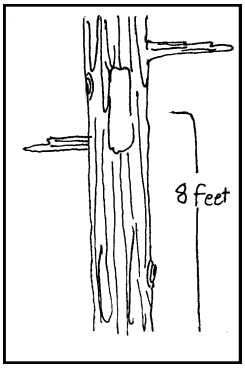
In advance of your trip, know the rangers, horse-packers, telephones, trailheads and quickest route out of the back country in case of an emergency.

The Buddy System:

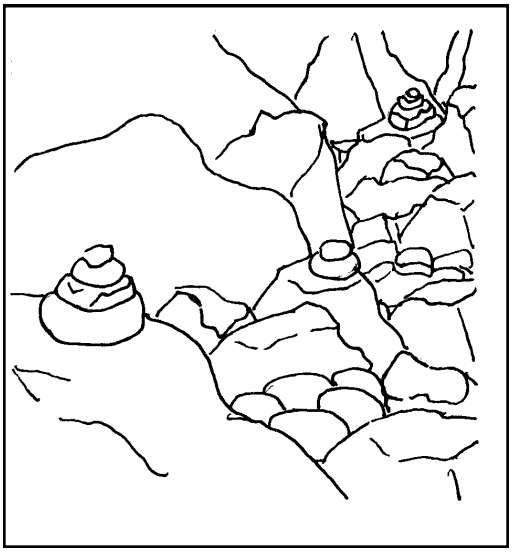
Stay with your group! Use a buddy system, and advise your buddy if you're leaving the trail for a bathroom break, or leaving your tent at night for the same purpose (potty breaks at night are best done close to camp; privacy isn't an issue in the dark). Maintain visual contact with your group, and keep a constant count of all group members and whereabouts. Minimum group size is four people (one must be an adult). If a large trekking group sub-divides on the trail, know how many are in each sub-group.

The Trail Signs:

Sometimes trails are marked in more obscure ways. Be familiar with ducks (cairns), blazes and trace trails. Understand that a log *placed* perpendicular to the start of a trail is a sign that the trail is closed. Don't confuse this with downed trees. Also, be aware that water run-off can look like a trail, especially at the ends of switchbacks. Stay on the well-used trails, and wait till you're very experienced and knowledgeable with maps, compasses and backpacking before you consider venturing off trail.



Blaze on tree



Ducks: Can you find all three?

However, if you do get disoriented or lost...

As soon as you realize that you're not sure of your location — stop! Many people get themselves hopelessly lost by thinking they can find trail or camp by forging ahead. They can strand themselves dangerously close to cliffs, ledges or adrift in a sea of 12-foot high chaparral. The sooner you acknowledge that you're not sure of your way, the easier it is to get out of trouble.

Step One — Don't Panic!
Not knowing where you are can be unnerving. Sit down, rest, think and calm yourself and your fellow hikers. It's time to gather your thoughts and use your resources wisely, so you must be in control of yourself.

Step Two — Stay Put!
Do not move until you've had a chance to think out your situation. Sit down, massage your feet and think through your situation. Will your hiking buddies be looking for you? The place your group last saw you is the place they will look first. Or, is your whole group lost together?

Step Three — Are you disoriented, or genuinely lost?
Did you just get turned around looking for the perfect bathroom vista, or do you genuinely not know where you are on your map? If you're merely turned around (disoriented), blow three times on your whistle (anything in a series of three denotes an SOS distress call). Stay put, blowing your distress call, till your camp buddies locate you.

I am *so* lost. Now What?!:
Stay focused and level-headed. If you are genuinely lost, look carefully at your map:

- Where was your last known location? Can you confidently get back to that spot? *Are you absolutely certain? Only return to that spot if you're certain you can accomplish it successfully.*
- What landmarks can you correctly identify — lakes, streams, peaks. Can you deduce your location from the visual clues, or triangulate your position with your compass? Do you recognize any landmarks seen from an earlier location: a dead tree, a notable peak?

Do Not:

- Take "shortcuts" through thick chaparral.
- Take "shortcuts" along or over steep cliffs.
- Hike in the dark, fog or white-out conditions.
- Light a signal fire — California is always in a high-risk, year-round fire season.

If You're Waiting for Rescue:

- Stay put unless you *must* seek better shelter or water. Your 10 Essentials — the emergency blanket as a shelter, your extra food, water and warm clothing — should allow you to stay put for some time. If you must secure shelter, look for a small space — between rocks, under a log — blocked from the wind. If you absolutely must leave the trail, put a note or marker (bandana) at the trail.
- Make yourself and your location highly visible. Pick an open spot and display a marker that can be seen from the air (X made of rocks or gear, lay out your space blanket or bright poncho — unless you need them for shelter).
- If the conditions/location allow you to *safely* build a small fire for warmth, locate it in a clearing. Be sure to clear a 4-foot area, monitor your fire and extinguish it completely before you leave. Collect plenty of fuel before dark. Do Not Move after dark.
- Stay calm. Someone will be looking for you soon, so make it easy for them to find you. Take care of yourself by staying dry, warm and fed (the real reason for those 10 Essentials and an in-town contact).

Backpacker Tip!

In the discomfort of feeling lost, it's not unusual to try to force the map to fit your surroundings. Take your time studying the map as well as the physical land features, and don't fudge on the precision of your observations.

Wilderness First Aid

Preventing injuries is far preferable to administering first aid. Recognize that injuries can often be prevented. Pre-trip attention to old injuries, confiding in your hiking buddies, getting in proper shape and just having your wits about you will keep you safe, and keep your first aid kit in the bottom of your pack.

Check With the Doctor:

If you have an old injury or health condition that might rear its ugly head under the physical exertion of backpacking, check in with your physician before you hit the trail. Get a thumbs up from the doc, and some sound advice on how to minimize or eliminate this condition, as part of your trip preparation.

Get in Shape:

Sounds obvious, but this is often overlooked as a consequence of our busy lives. Train for your backpacking trip with plenty of rigorous day hikes. Get off the sidewalks and walk on uneven ground, to build strength and agility. If you own your own backpack, load your pack with 20 - 25% of your body weight and take a couple shakedown hikes before your trip.

Identify Key Concerns and Risks:

Fear can play a role in injury occurrence. A frightened hiker is tense and lacks confidence, and as a result will compromise her own safety. Crossing streams, navigating across snow fields and boulder fields, exposure to falls — these scenarios can give even the most experienced hikers the occasional collywobbles. Acknowledging the fear, and sharing it with a leader or hiking partner, can create alternatives and remedies. A more confident hiker can help build the confidence of a less-experienced hiker, preventing accidents from occurring.

Take note of key risks when you plan your trip, and discuss strategies and prevention with your group before heading out. Are you hiking in bear country? Will you be crossing or traveling near swift water? Is this an early season trip? What kind of weather can be expected? Examining the conditions and risks before you head out allows you to prepare both your gear and mindset.

Pay Attention:

The views may be great up in the mountains, but your head can't get lost in the clouds. Be aware of changing weather, trail conditions and the health and welfare of your hiking buddies. Keep your mind on your surroundings, and stay focused and engaged. Expect that your boots will be slippery when they get wet (near creeks, crossing streams on boulders, after crossing snow); note the build-up of towering cumulous clouds over the peak you're intending to climb; realize that your stove will be very hot long after you turn it off.

When Help is DELAYED

Caring for an injured hiker becomes more complex the farther you are in the back country. In addition to caring for the victim with your first aid knowledge and skills, you have added tasks: extended first aid care, risks of exposure, evaluating your resources and planning and implementing an evacuation or rescue.

Start with Good Preparation:

- As a leader you must be first aid & CPR certified to hike with your Girl Scouts.
- You must be Level II First Aid trained to lead girls on overnight trips of one or two nights.
- You must be certified in Wilderness First Aid to lead trips of three nights or more.
- *All participants* on trips of three nights or more must be first aid & CPR trained.

Check, Call & Care:

In a delayed-help environment, you can no longer activate the emergency system with a quick call to 911. Each step — check, call and care — is more detailed and requires your extended time and resources.

Check: Your first step in an emergency situation includes checking the scene (safety for you and the victim), checking the victim (implementing first aid procedures) and checking for available resources. Resources include people available to help, communication or signaling devices, food and water, shelter, first aid supplies and means for transportation.

Call: You have four options for getting help. The information you gather (**Check**) will help you reach a decision on whether you should:
- Stay where you are and call, radio or signal for help
- Send someone to go get help
- Transport the victim to help
- Care for the victim where you are until the victim has recovered enough to travel on her own

Care: You will need to care for the victim for an extended period of time when help is delayed. Remain calm, and don't forget to take care of yourself so that you can provide the best care possible.

Backpacker Tips!

- Increase your resources. Encourage both girls and adults on all your outdoor trips to be — at the very least — first aid trained.
- Divide and conquer. If you are the designated trip leader, assign another adult to be the designated first aider. Both of you should have the appropriate first aid training.

First Aid KITS

The contents of your first aid kit might vary, depending on if you're a girl, an adult or the trip first aider. You might want to split the group first aid kit with your co-leader. Your level of medical expertise will also be a factor in determining what first aid items you are qualified to use, and your hiking location (desert, oak woodlands, alpine) may impact the list (e.g., Tecnu for poison oak/ivy, small comb for removing cactus needles …).

Three different first aid kits are described below. In order to promote self-sufficiency, everyone should have a good first aid kit. Adults may add medications/tools that require more knowledge than a girl's kit. Group kits are comprehensive.

A Youth First Aid Kit will include:

- Any necessary medications
- Pain reliever
- Band Aids of different sizes
- Adhesive tape
- Duct tape
- Gauze bandages - two sizes
- Blister prevention (mole foam, etc.)
- Anti-bacterial ointment
- Non-latex gloves
- A couple unscented tampons and sanitary pad
- Safety pins, needle and thread
- Ace bandage (three-inch wide)
- After-Bite or other anti-itch ointment
- Health History form

An Adult's First Aid Kit will *also* include:

- Thermometer
- Tweezers
- Immodium or other anti-diarrhea medication
- Benadryl/Claritin/Sudafed
- Butterfly bandages
- CPR mouth barrier

A Group First Aid Kit will *also* include:

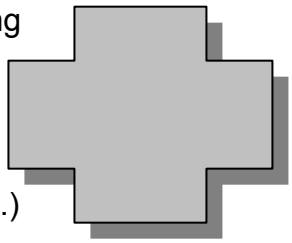
- Assorted Band Aids
- Assorted gauze pads (1 - 4 inch)
- Roller gauze bandage
- Adhesive tape (waterproof)
- Mole foam, moleskin, bunion pads
- Ace Bandage
- Small scissors
- Nail clippers
- Additional pain medications
- Antiseptic wipes
- Non-latex gloves
- Anti-itch, anti-sting ointment
- Water purification tablets
- Electrolyte replacement (Gatorade, Gookinaid, EmergenC)
- Foldable cup
- Poison oak/ivy treatment (Tecnu)
- Neosporin
- Eye drops (saline solution)
- Anbesol
- Small white cake icing
- Cold/flu remedies
- Cough/sore throat remedies
- Fine-toothed comb (cactus encounters)

Backpacker Tips!

- It helps to re-stock your first aid kit after every trip. Check for expiration dates on medications before trips.
- Be prepared: encourage all your trip participants to be first aid/CPR trained. As a leader, extend your knowledge by taking Wilderness First Aid/Wilderness First Responder courses.

First AID

Exerting ourselves at higher elevations puts us at a greater risk for developing certain health conditions. Nearly every hiker at some point experiences some of the symptoms for altitude sickness and dehydration, and personal temperature control is of enormous importance when you are out in the elements. It is vital that you recognize and respect the early warning signs for each of the following conditions. (Symptoms are listed in order of severity.)



Altitude Sickness:

Hikers generally begin to feel the effects of higher elevations — and less oxygen in their bloodstream — at about 9000 feet, and while altitude sickness can be life threatening, most often it is just a source of discomfort until you acclimate.

Symptoms: Headache, light headedness, fatigue, loss of appetite, nosebleeds, nausea, vomiting

Prevention: Your body needs time to acclimate to higher elevations. It generally takes 24 -72 hours to fully acclimate. Gain elevation gradually by camping at progressively higher elevations, ascending no more than 1000 feet per day.

Remedy: The only real cure for altitude sickness is to descend. However, if the symptoms are not severe, treat them accordingly:
1) Mild — headache, slight nausea: take aspirin, drink more water, eat
2) Intermediate — vomiting, severe headache: descend, consider how to proceed with or cancel plans. If possible, eat and re-hydrate.
3) Severe — persistent vomiting: evacuate to emergency care

Dehydration:

The loss of water and electrolytes (salts and potassium) is not uncommon when you are exerting yourself at high altitudes. Dehydration can develop into a serious problem if you neglect the symptoms. It can contribute to heat exhaustion and heat stroke, as well as exacerbate the symptoms of altitude sickness. Fortunately, dehydration is easy to prevent.

Symptoms: Dry mouth, headache, nausea, dizziness, dark or decreased urination, muscle cramps

Prevention: Drink water — frequently! Eat salty snacks. Supplement your water with electrolyte balanced products (e.g., Emergen-C, Hydrolite, etc.). Drink water before you feel thirsty, and before you begin hiking (pre-hydrate). Monitor your water intake as well as the color of your urine.

Remedy: The same as prevention.

Hypothermia:

Hypothermia is a significant drop in the body's core temperature, causing progressive mental and physical collapse and generally due to prolonged exposure to the cold. However, a hiker can become hypothermic in temperatures as high as 60 degrees, which is one reason it is imperative to dress appropriately (no cotton) and to recognize and treat the symptoms early. Wind blowing on wet or moist clothing can increase the chance of hypothermia. It isn't unusual for the victim to not recognize the symptoms, underscoring the need for hiking partners to be aware of each other's condition.

Symptoms: Shivering, numbness, lack of coordination, a slow and irregular pulse, apathy, confusion and decreasing levels of consciousness.

Prevention: Stay warm, dry and well hydrated; eat well, keeping energy levels high; *always* pack warm layers made of appropriate fabrics, and keep your fleece/windbreaker handy for rest stops, especially on windy passes. Make camp early in bad weather.

Remedy: Immediately replace damp clothing with dry insulating layers; wear hat and gloves; consume warm liquids; seek shelter; warm body in sleeping bag with a hot water bottle or for more severe victims, climb in the sack with them. Handle severe victims gently, warm them gradually and treat for shock.

Heat Exhaustion:

Heat exhaustion is the most common form of heat illness. The victim has a normal mental state, and remains coordinated. If unchecked, heat exhaustion can progress to the far more dangerous condition — heat stroke.

Symptoms: Excessive sweating, fatigue, dizziness, seeing stars or black spots, headache, weakness, loss of appetite, nausea, vomiting.

Prevention: Drink lots of water throughout the day, but *also* eat salty snacks and drink electrolyte-balanced drinks to avoid leaching the salts and electrolytes out of your body. Cover up — wear a hat, sleeves, light reflective clothing and shade the neck with a damp bandana. Hike early in the day and anticipate developing signs of heat fatigue.

Remedy: Stop all exertion and rest in a cool, shaded environment; loosen restrictive clothing; drink water with electrolytes or salt; administer cold, wet compresses (bandanas work well) especially to the face, neck, armpits and groin. Rest before resuming activities.

Heat Stroke:

This is a serious condition, and an extension of heat exhaustion. Heat stroke can be fatal.

Symptoms: The victim usually (but not always) stops sweating, and exhibits abnormal or erratic behavior. She may be confused, disoriented, off balance and has a raised temperature (105 degrees).

Prevention: Same as heat exhaustion.

Remedy: Cool the victim as quickly as possible; immerse in cool water if possible. Do not give victim anything to drink because of the risk of vomiting and aspiration. Treat for shock. Evacuate immediately, continuing to cool the victim along the way until their temperature drops to 100 - 101 degrees.

Backpacker 100-Mile Trail Award LOG

To achieve this award, you must be a registered Girl Scout, girl or adult. You must accumulate 100 backpacking miles on overnight trips, including any training trips. The 100-Mile Backpacking Patch will be awarded upon completion. You may not count day hike mileage. 50 -Mile patches can be earned for completing additional mileage after the 100-Mile patch has been earned.

Name _____ Address _____ Phone # _____ Troop #_____

Leader _____ Phone # _____

Date	Trailhead Trip Description	Miles	Total Miles to Date	Trip Leader's Signature	Name of Group

Comprehensive Gear LIST

	Equipment		Kitchen
	Backpack		Mess Kit: plate/bowl, fork, spoon, cup w/ lid
	Sleeping bag		Bandana
	Sleeping pad/insulite		12” sq. aluminum foil
	Water bottles (2 qts.)/water bladder		Extra Ziplock bags
	Pack cover (45 gal. trash bag)		**Community Gear:** Pot w/lid, sponge, soap
	Lightweight daypack		
	Stuff sacks (for food, organizing gear, etc.)		**Clothes**
	Bear canister - Sierra trips		Poncho (H2O proof jacket)
	Flashlight, extra batteries		Warm jacket
	Topo map, trail descriptions		Fleece sweatshirt
	Compass (baseplate)		Long-sleeve shirt
	Knife		Long pants/fleece pants
	First aid kit & whistle		2 tee shirts
	Matches & fire starter		1 shorts
	Optional: trekking poles		2 pairs wool socks (liners?)
	Community Gear		Underwear (2 sports bras, 2 panties)
	Tent & ground cloth		Mittens and beanie
	Water filter		Consider: gaiters, swimsuit, long johns, water shoes
	Stove & fuel		Boots
	Trowel		**Trail Wallet**
	Rope (50’ nylon)		Driver’s license/ID
	Collapsible H2O bag (for camp use)		Wilderness Permit
	Collapsible bucket (week-long trips)		Credit/debit card, insurance card
	Personal		Cash, (no coins)
	Hygiene kit: TP in Ziplock, trash Ziplock, feminine supplies		Leaders: group paperwork
	Sunglasses, hat, sunscreen, lip block		
	Campsuds		**At The Trailhead**
	Mosquito repellent, head net		Change of clothes, including sweatshirt
	Bandana or pack towel		Clean-up kit (razor, soap, etc.)
	Toilet articles: toothbrush, paste, brush, hair tie, contact lens stuff, glasses		Towel
	Camera, film/batteries, memory card		
	Book, journal and pen, cards		

How to Pack a Day PACK

Wilderness Hiking Personal Gear List.xls

	Description	where to find
Quick Kit:	Ziplock bag	drug / grocery store
☐ Sunscreen/block	small, travel size	drug / grocery store
☐ Insect repellant	spray, high % of DEET	Discount /camping store
☐ Lip balm /chap stick	with sun block	drug / grocery store
☐ Tylenol / Aspirin / Ibuprofen	2 doses minimum or 2 doses / day	drug / grocery store
☐ Map	Topographical or trails map of area	website, handouts
☐ Compass	flat, clear, with straight edge	>$10 Discount
☐ 10 ft. rope	parachute cord	>$3 Discount
☐ Whistle	small light	drug / grocery store
☐ Flashlight	small, light weight	Discount /camping store
☐ Pocket knife	single blade, small, light weight	Discount /camping store
Foot Rx Kit:	Ziplock bag	drug / grocery store
☐ Band-Aids	6 or 3 per day	drug / grocery store
☐ Moleskin / blister pads	(2" x 4") sheet or 2 blister pads	drug / grocery store
☐ gauze bandage or large Band-aid	elbow & knee size	drug / grocery store
☐ Antiseptic	(Neosporin)	drug / grocery store
Emergency Kit	Ziplock bag	drug / grocery store
☐ Extra batteries	must fit flash light	drug / grocery store
☐ Space blanket	blanket or bag	>$3 Discount
☐ Candle / fire starter	small, light weight	make / drug /grocery store
☐ Matches or lighter	Self-strike in waterproof container	drug /grocery store
☐ Needle & thread	2 yds of thread or dental floss	drug /grocery store
☐ Safety pins	2-3 of assorted sizes	drug /grocery store
☐ Coins for phone call or calling card	$0.50	
☐ Small pencil w/ duct tape	about 2-3ft of tape wrapped around pencil	drug /grocery store
☐ cards	3 x 5" note card	drug /grocery store
☐ Medical Authorization Form	Name, address, allergies & Medical conditions	make/ GS form
	Health plan number, Emergency contact person & phone	
Extra Clothing	water repellant nylon bag	Discount /camping store
☐ Knit cap	wool	Discount /camping store
☐ Insulating layer	poly or wool or down appropriate to climate	Discount /camping store
☐ Rain jacket	NOT a poncho NOT thin Plastic	Discount /camping store
Extra Food & Water		
☐ Extra food	Snack /power bar in addition to meal	drug / grocery store
☐ Water bottle / bladder	1 QT/LT minimum – 2 QT/LT	Discount /camping store
Trail wallet: (drivers/ adults)	plastic pouch	
☐ Cards	ID, credit card etc. (minimum)	
☐ Keys	(car & house)	
Toilet Kit:	water repellant nylon bag	Discount /camping store
☐ Toilet paper / Kleenex	camping TP or Kleenex packets	Discount / drug /grocery
☐ Sanitary napkins / tampons	(½ cycle)	drug /grocery store
☐ Trash bag	2 each 1qt Ziploc freezer bags	drug /grocery store
☐ Hand sanitizer	small travel size or wipes	Discount /camping store
☐ Baby wipes	small travel size	Discount /camping store
Wearing		
☐ Hiking boots	dayhikers	Discount /camping store
☐ Socks liner / outer	thick, wool outer sock; thin nylon liner	Discount /camping store
☐ Bandana	cotton	Discount /camping store
☐ Sun Hat	wide brim, cover top ears & neck	Discount /camping store
☐ Clothing	appropriate for climate & weather	Discount /camping store
☐ Sunglasses		drug / grocery store

Personal Gear WORKSHEET

have	buy	rent	Item	Description
☐	☐	☐	**Day/Fanny Pack**	**packed per Wilderness Hike List**
			Other:	
☐	☐	☐	Pack	with padded hip belt 800-1400 cu.in.
☐	☐	☐	Sleeping pad	ensolite closed cell foam
☐	☐	☐	Sleeping bag	6" loft, down or synthetic; 20 degrees or lower
☐	☐	☐	Straps	to attach sleeping bag NOT BUNGEE
☐	☐	☐	Pack cover	large trash bag or water proof nylon
☐	☐	☐	Water socks/Camp shoes	light weight; creek crossing
			Individual Kitchen:	
☐	☐		50 ft. parachute cord	1/8 inch or smaller diameter
☐	☐		Water bottle/bladder	total 2 qt. water carrying capacity
☐	☐		Cup	light weight plastic
☐	☐		Bowl	Ziplock or Glad ware NOT METAL
☐	☐		Spoon/spork	metal or heavy gauge plastic
☐	☐		Wash basin	bottom of plastic laundry soap bottle
			Personnel Kit:	
☐	☐		Tooth brush	small travel size
☐	☐		Tooth paste	small travel size
☐	☐		Comb/brush	small travel size
☐	☐		Hand cream	heavy duty (Curel) 0.1 oz/day
☐	☐		Vaseline	small lip gloss
☐	☐		Q-tips	1/day
☐	☐		Handy wipe	or facial toweletts
☐	☐		Deodorant	small travel size
			Spare/Warm Clothing:	
☐	☐		Bra	sport type/no lace
☐	☐		Under wear	cotton/no lace
☐	☐		Socks liner	synthetic/wicking
☐	☐		Socks outer	wool; heavy duty
☐	☐		T-shirt	cotton or wicking material
☐	☐		Shorts	cotton or wicking material
☐	☐		Bandana	cotton
☐	☐		Light long sleeve shirt	wicking material
☐	☐		Wool shirt/sweater/poly jacket	1/8-1/4 inches thick
☐	☐		Long pants	or zip on legs to convertible nylon pant
☐	☐		Rain/wind pants	ski over pant/poly lined athletic pant
☐	☐		Mittens/gloves	poly or wool water proof shell
☐	☐		Parka/thick, light weight jacket	3/4-1 inch thick; down or synthetic
☐	☐		Long under wear/top	poly or silk NOT COTTON
☐	☐		Long under wear/pant	poly or silk NOT COTTON
			1st Day Clothing Bag	(in separate bag - not part of personnel weight)
☐	☐		Hiking boots	over ankle; day hikers
☐	☐		Socks liner	synthetic/wicking
☐	☐		Socks outer	wool; heavy duty
☐	☐		Bra	sport type/no lace
☐	☐		Under wear	cotton/no lace
☐	☐		T-shirt	cotton or wicking material
☐	☐		Shorts	cotton or wicking material; convertible pants
☐	☐		Bandana	cotton
☐	☐		Shade hat	full brim; cover neck & ears

Group Gear WORKSHEET

	Item	Description	
Tent Buddy:		Ph. No._____	**WHO BRINGS WHAT**
	Tent	check zippers work - bag to pack it in	
	Rain Fly	check water proof - bag to pack it in	
	Ground cloth/foot print	fits UNDER tent outline - bag to pack it in	
	Stakes	check qty; 2 types - solid & fluted - bag to pack them in	
	Poles	check fit & qty - bag to pack them in	
Kitchen/Cook Group			
	Shovel	plastic about 6" long (usually orange)	
	Kitchen Bag:		
	Stove	propane/butane type collapsible	
	Fuel	propane/butane canister fits stove	
	Windscreen		
	Matches or lighter	matches in waterproof container/lighter w/hair band	
	Cleaning Bag:		
	Cleaning pad/ sponge	cut 1/3 size	
	Biodegradable soap	1/8 oz. per day	
	Handi wipe		
	Napkins	1-2 per day	
	Small table cloth	2' X 2' plastic or Large Ziplock storage bag	
	Pot	about 1 qt; aluminum	
	Pot lid	or foil (heavy duty) 1' x 1'	
	Pot grip/hot pad	(optional if pot does not have handle)	
	Frying pan	(optional depending on menu)	
	Spatula	(optional depending on menu)	
	Cooking oil	(optional depending on menu)	
Trekking Group		Items for group traveling together	
	Permit		
	Outdoor Activity Approval	(itinerary filed with council)	
	In-town contact	person with list of emergency contacts	
	Water filter #1	1 for every 5-8 people (minimum 2)	
	Water filter #2	1 for every 5-8 people (minimum 2)	
	Rain Tarp (s)	enough to cover everyone while cooking ~1.2 sq. ft per person	
	Small leather man	or multi-blade knife/pliers to repair pack	
	Trekking poles	minimum 2	
	Spare pin & ring	to repair pack	
	Full topographical map		
	Group 1st aid kit #1	for 4-10 people; includes ranger & nearest medical	
	Creek crossing rope		
	Fire place grill	1 for 2 cook groups to share	
	Hook	fit pole for bear cache	

Backpack Trip Paperwork CHECKLIST

Three - six months in advance of trip:

_____ **Detailed Itinerary**
Your detailed itinerary is the result of good trip planning. It is developed by the leader for a Basic Backpacking trip, or by the girls on an Advanced Backpacking trip. It includes your daily route and mileage and intended camping spots. (You'll be writing similar information on your wilderness permit.) You can photocopy trip descriptions from backpacking books and include those as well.

Developing your itinerary takes time — it's the "armchair travel" we get to enjoy in January. By reading trip guidebooks, or going online to U.S. Forest Service/Park Service websites, you can gather all the information you need to plan a great trip. Sit down with all your resources, plus the trip topo maps, to plan the day-to-day mileage, elevation gains and losses and route for your trip.

The itinerary is a wonderful tool on your trip, and it's only a page or two — much easier to carry than a guidebook. You and the girls can reference your itinerary along with your map to plan each day's journey: what time you need to break camp, where you'll find water during the day, etc.

_____ **Wilderness Permit** (depending on agency, can be reserved three - six months in advance)

One - three months in advance of trip:

_____ **High Adventure Health History Form** (two copies: first aider keeps one copy from each participant, and another copy should be in each person's first aid kit)

_____ **Permission Slip** (two copies: first aider keeps one copy, carpool driver keeps 2nd copy. Consider having a permission slip for the backpack trip, and another that covers all conditioning hikes. Keep in a Ziplock bag along with each person's health history form.)

_____ **Itinerary & Emergency Information Sheet:**
- Basic calendar itinerary
- Important phone numbers (leader's cell phone, back country emergency number, ranger station, closest medical facility and an "after hours" number (often the sheriff) your in-town contact can call if you aren't back on time.)
- For More Information (This is a "catch-all" category. You can list helpful websites, books and other resources that your group/families can reference.)
- Trip Costs: includes insurance, maps, souvenir/travel costs
- Trip Roster: includes participants' names, adult/girl, phone number, other information you think is relevant.

Two - three weeks in advance of trip:

_____ **Activity Approval form** (Send to your service unit activity consultant, along with your emergency information sheet, detailed itinerary, gear list, copy of permission slip)

_____ **Insurance form and check** (send to council two weeks before trip)

Personal NOTES

This book is dedicated in memoriam to

Marian Holcomb

June 26, 1910 – February 21, 2007

Marian Holcomb, backpacking and Girl Scouts are synonymous with one another. For over 30 years Marian led backpacking trips and trained Girl Scout leaders in this skill. These leaders passed their knowledge on to countless girls and adults, many of whom today still find joy in the outdoors and remember with great fondness the wonderful trips they made with their troops. Thousands of people can thank Marian for their memories.

In 1960, Marian joined the San Diego-Imperial Council as a “Field Director.” In 1964, after taking a backpacking class with the Sierra Club, Marian and her dear friend Elsie Luranc decided they would teach a backpacking class for Girl Scouts. After her retirement from the Girl Scout Council in 1977, Marian continued to teach backpacking until she was 85.

Marian’s legacy lives on in Girl Scouting through the backpacking program that she pioneered. She recognized the value of instilling in young girls the appreciation of nature and the confidence that comes with the ability to live comfortably in an outdoor setting.

Submitted respectfully by the Girl Scout friends of Marian Holcomb

Special thanks to backpacking instructors and authors of this manual

Valerie Ross and Ginny Barrs

They continue to cultivate the spirit of backpacking through a strong dedication to the mission of Girl Scouts and passion for the outdoors, creating opportunities for life changing experiences.

Outdoor Education Mission

We aim to inspire positive and challenging experience in the outdoors, building interpersonal connections between people and the natural environment while sharing life changing adventures.

girl scouts
san diego

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