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## Tents

If at all possible, visit an outfitter or sporting goods store where you can look at several candidate tents side by side. At your next council or district camping event, observe what other troops are using, get their opinions on what they like and dislike based on their experience.

You might want to check the ratings on tents.

There are 3-season tents only, that won't be suitable for heavy duty winter camping.

Timberline

Eureka Backcountry 2-man

Generic dome tents at Wal-mart. They are inexpensive, but be careful that you do not trade function and durability for price.

Eureka Apex 2 man tents

Gucci tents.

I'd look for durability, ventilation, ventilation, ventilation and price - in that order.

The Timberline A - frame tents are available in a 'heavy duty' style - expedition? guide? They weigh more, but should provide longer service, especially with the hard service Scouts can put gear through. 'Light weight' tents may not last as long as you would hope

The main question being size: 2-man and have the boys leave their gear outside under a tarp (or vestibule), or 4-man (which are big enough for two scouts plus all their equipment).

Sidewise entry means the second boy has to crawl over the first boy to get into/out of the tent (i.e., the door is in the side of the tent rather than in the end). It may seem like a pain to crawl over someone but the side door is really nice and big. With the side doors you "step" in and out instead of crawl out the end.

Poles should be double shock corded, I prefer aluminum to fiberglass poles.

A full coverage rain fly is a must. A "bathtub" style floor so a separate ground sheet is not necessarily needed. get and use a ground cloth under the tent. This will greatly increase the life of the floor.

If you are backpacking the two man tent is a great way to go. Small size - Less open space to body-heat and less surface area to dissipate that heat keeps in lots on those winter trips. Easily distributed – Two buddies in one tent. (You carry the poles, stakes and fly, I'll carry the tent today. We'll switch tomorrow).

Store most of the gear outside the tents. You'll want to reduce weight as much as possible, especially since some of your Scouts won't be full-sized adults and will be carrying smaller

loads. Those extra few pounds will feel like a ton to the Scouts at the end of a day of backpacking.

Tents should be used to house people, not gear. It makes no sense to backpack carrying a 4 man tent only to put two people in it. It means you carry more weight because 4-man tents weight more and they also take up a lot of square footage. Bringing packs into tents just destroys the floor and zippers. Teach your kids (and adults) to cover your packs at night with a tarp, pack cover, or large garbage bag and just put bodies in tents. Don't lay the pack on the ground, but prop it up with a stick so it stands. Having two doors is great so you don't wake up your tent mate when you have to get up and pee at night. Having two vestibules is even better. The Backcountry doesn't offer that. However, because it is a modified dome, it offers more volume than a Timberline.

Our crew uses the Eureka Mountain Pass II. An excellent tent that meets all the requirements I've listed. However, the Timberline II has been the staple of troop tents. The Timberlite is a good tent and it comes with a vestibule.

We have never allowed any food item in a tent. Once food has gotten into a tent, the smell can not be removed. Animals will damage the tent trying to get in because they smell food, even if you or I can't.

An alternative to covering the packs is a tent with a vestibule so you can keep wet clothes and dirty boots outside of the sleeping area. If you have a vestibule, do not use it as a cooking area like you see on many outdoor shows.

I would look at the zippers on any tent and ask about zipper care, repair, and replacement. This is probably your highest maintenance item. We applied aerosol silicone on our zippers after every campout. This seemed to help clean the dirt out and keep them lubricated so they lasted longer.

When evaluating a tent with a "sloped front" like the Clip-2, Archrival, Vortex, etc; think about where rainwater will channel from off of the fly when you open the vestibule in a rain storm. On some tents, it will drip down from the top of the open vestibule zipper into the front door of the tent proper.

## Cotton Kills

Cotton is one of the BEST materials out there for camping. It is also one of the WORST. It depends on what you want to do with sweat, moisture and water vapor. With a well hydrated body, sweat is inevitable. Proper hydration is just as important in the winter as it is in the summer. Teach your Scouts about hydration, sweat and layering systems. Teach your Scouts about the materials available for clothing, sleeping bags, etc. Teach your Scouts about how to be prepared for emergencies in the winter. Then, let them choose. There are times in the winter when you WANT clothing to very quickly absorb moisture. There are times in the winter and summer when you DO NOT WANT clothing to absorb moisture.

Drying time is only part of the equation. For example, a 100% wool sweater will probably take as long, or even longer than cotton to dry, but it will insulate while wet, where cotton will not.

This is also the argument for Qualofill(TM) [sp] and other synthetic insulation material for sleeping bags and jackets, as opposed to down. The down is lighter when dry, but takes forever to dry, and is a poor insulator when wet, while the synthetics, especially those with the micro holes in the fiber will insulate even while dripping water.

A fire is much more dangerous to a person wearing a "poly" T-shirt than to one wearing a cotton or silk T-shirt. From personal experience I can attest to the fact that cold boys like to "hug" the fire. A synthetic tends to melt, glaze and attach to the skin. I'm sure many of you know the dangers of "whipping" the end of a synthetic rope by melting it. Imagine your body covered in this hot sticky substance.

While I would use my fleece on the river when the weather and/or water was chill, I would think seriously about using cotton when the temperatures are hovering around 113F and the water temperature is around 90F.

Cotton chills you because it retains moisture to evaporate. During the warm periods, it hangs onto the moisture too long, not allowing it to evaporate quickly enough. It is the evaporation that cools, not the water. Wearing cotton shirts backpacking, I feel nasty wearing my sweat soaked cotton beefy-T. It is cooling, but not that much. My Coolmax shirts feel great and have lots of salt stains. The water evaporated and cooled me, and I do not have to carry it around next to my skin.

Wool works. I do see wool hats. Up to a point where being jaunty or cool or your fashion piece is put away for serious cold weather. Wool retains 80% of its heat retention property when wet. Wool is heavy and becomes heavier when wet. I don't see wool as an insulator except in base camp or for fun/fashion.

Fleece is lighter when wet and dries quickly. Fleece is a lot lighter when dry. Fleece has greater loft which creates more warmth.

## Camp & Backpacking Lists

### Basic Personal Camping Equipment Checklist

- \_\_\_ Pack and frame (with straps for securing gear to frame)
- \_\_\_ Sleeping gear
  - \_\_\_ Sleeping bag in stuff sack (lined with plastic garbage bag)
  - \_\_\_ Inner bag or blanket liner (if required for cold weather)
  - \_\_\_ Socks, sweatsuit and stocking hat for sleeping (if required for cold weather)  
(Only for sleeping, not for outer wear)
  - \_\_\_ Foam sleeping pad (closed cell)
  - \_\_\_ Ground cloth
- \_\_\_ Eating Gear
  - \_\_\_ Canteen or water bottle
  - \_\_\_ Cup (recommend plastic)
  - \_\_\_ Bowl (recommend plastic)
  - \_\_\_ Spoon (recommend Lexan)
- \_\_\_ Toilet kit
  - \_\_\_ Small face towel or dish towel
- \_\_\_ Toothpaste and brush
- \_\_\_ Small bottle biodegradable soap
  - \_\_\_ 1/2 roll toilet paper in a ziplock bag
  - \_\_\_ Suntan lotion (as necessary)
  - \_\_\_ Chap stick (as necessary)
  - \_\_\_ Insect repellent (as necessary)
- \_\_\_ Clothing appropriate to the weather and activities
  - \_\_\_ Outer wear appropriate for the weather such as:  
winter coat/parka, windbreaker, Fleece/wool sweater, hooded sweatshirt
  - \_\_\_ Camping shoes (tennis shoes or moccasins)
  - \_\_\_ Boots or insulated boots (REQUIRED FOR WINTER CAMPING)
  - \_\_\_ Pair of socks for each day, plus one extra pair
  - \_\_\_ 1 additional pair long pants in cold weather
  - \_\_\_ 1 additional pair shorts in warm weather
  - \_\_\_ 2 t-shirts for activities
  - \_\_\_ Underwear for each day, plus one extra
  - \_\_\_ 2 bandannas
  - \_\_\_ 1 long sleeve shirt (2 in cold weather)
  - \_\_\_ 1 knit cap (cold weather)
  - \_\_\_ 2 pair lightweight polypropylene long underwear (cold weather)
  - \_\_\_ 1 pair synthetic/wool gloves (cold weather)
  - \_\_\_ 1 pair gloves/mitten shells (cold weather)
- \_\_\_ Rain suit
- \_\_\_ Scout Handbook
- \_\_\_ 6' - 10' rope
- \_\_\_ Scout knife/pocket knife, sharpening stone

\_\_\_ Individual first aid kit

### **Mandatory Personal Backpacking Equipment Checklist (In Addition to Basic Equipment List)**

- \_\_\_ Pack cover or plastic garbage bag
- \_\_\_ 2 Quart water bottles (recommend Nalgene)(In place of canteen)
- \_\_\_ Hot spot kit (moleskin, small scissors, foot powder)
- \_\_\_ 50' Rope (recommend parachute cord)
- \_\_\_ Pocketknife or multi-tool
- \_\_\_ Whistle
- \_\_\_ Matches (in waterproof match case)
- \_\_\_ Hiking boots
- \_\_\_ Camp shoes (sneakers or moccasins)
- \_\_\_ 2 pair wool/nylon ragg socks (In place of socks from basic equipment list)
- \_\_\_ 2 pair sock liners (polypropylene are best)
- \_\_\_ Wide brimmed hat or ball cap

### **Optional Personal Backpacking Equipment Checklist**

- \_\_\_ Bear spray
- \_\_\_ Gaiters
- \_\_\_ Gorp/train mix
- \_\_\_ Water filter or purification pump
- \_\_\_ Hammer for stakes

### **Optional Personal Camping Equipment Checklist**

- \_\_\_ Daypack
- \_\_\_ Self inflating sleeping pad
- \_\_\_ Garbage bags
- \_\_\_ Small flashlight (new 2 AA batteries, spare batteries and bulb)
- \_\_\_ Compass
- \_\_\_ 50' Rope (recommend parachute cord)
- \_\_\_ Hiking stick or Scout Stave
- \_\_\_ Watch
- \_\_\_ Whistle
- \_\_\_ Matches (in waterproof match case)
- \_\_\_ Candle or other fire starter

- \_\_\_ Trowel
- \_\_\_ Additional toilet kit items may include:
  - \_\_\_ Wash cloth
  - \_\_\_ Small mirror
  - \_\_\_ Comb
  - \_\_\_ Dental floss
  - \_\_\_ Safety pins
- \_\_\_ Knife and fork
- \_\_\_ Prayer book
- \_\_\_ BSA Field book or other Nature Books
- \_\_\_ Notebook (hiking or camping log) and pencil
- \_\_\_ Paperback books
- \_\_\_ Camera and film
- \_\_\_ Sunglasses
- \_\_\_ Fishing gear (license normally required for adults)
- \_\_\_ Field glasses (binoculars)
- \_\_\_ Pillow
- \_\_\_ Wide brimmed hat or baseball cap
- \_\_\_ Pajamas (if you use them)
- \_\_\_ Camp chair
- \_\_\_ Clothes pins
- \_\_\_ Clothes hangers
- \_\_\_ Swim suit (if appropriate)
- \_\_\_ Swim mask, fins, and snorkel (if appropriate)
- \_\_\_ Personal survival kit
- \_\_\_ Hand axe (tote-n-chip card required)
- \_\_\_ Saw (Tote-n-chip card required)
- \_\_\_ 10 foot Twine or cord
- \_\_\_ Multi-tools
- \_\_\_ Personal food spices (cinnamon, minced onion, garlic powder, Tabasco sauce, etc.)
- \_\_\_ Clotheslines
- \_\_\_ Personal first aid kit

### **Mandatory Backpacking Crew Equipment Checklist**

- \_\_\_ Backpacking tents with fly for two
- \_\_\_ Ground sheet (space blanket, one per tent)
- \_\_\_ Small flashlight (per tent)(new 2 AA batteries, spare batteries and bulb)
- \_\_\_ Three one-burner backpacking stoves with fuel bottles and fuel filter
- \_\_\_ 2 bottles Potable Aqua or Polar Pure
- \_\_\_ Cook kit is the Trail Chef Kit, minus plates and cups, but plus an additional largest pot.
- \_\_\_ Cooking utensils (plastic measuring cup, long handled spoon, spatula)

- \_\_\_ Teflon-coated aluminum 9-inch frypan
- \_\_\_ Cooking tongs or pliers (multi-tool)
- \_\_\_ 3 half gallon plastic ice cream containers (for dishwashing)
- \_\_\_ 1 mesh bag (for drying and storing dishes)
- \_\_\_ Frisbee with holes (to drain wash water)
- \_\_\_ 2 one gallon water bags
- \_\_\_ 2 Plastic mesh dishwashing scourers (green scrubbie pads), and a small sponge
- \_\_\_ Liquid biodegradable soap (Camp Suds), and
- \_\_\_ Household bleach
- \_\_\_ Planned meals
- \_\_\_ Bear bags and ropes
- \_\_\_ Trowel
- \_\_\_ 2 rolls toilet paper in a gallon ziploc bag
- \_\_\_ Maps
- \_\_\_ Compass
- \_\_\_ First aid kit (Crew)
- \_\_\_ Cord or twine
- \_\_\_ Trash bags and extra gallon ziplock bags
- \_\_\_ 2 50' ¼ inch lines (recommend parachute cord)
- \_\_\_ National Tour Permit, signed permission slips, first aid log, medical forms
- \_\_\_ Duct tape (not the entire roll)
- \_\_\_ Repair kit containing: needle, thread, safety pins, buttons, rubber bands, thin wire, extra clevis pins for packs, and 2 inch screws with nuts (match the longest clevis pin on any pack).

### Optional Backpacking Crew Equipment Checklist

- \_\_\_ Nylon fly with lines, poles, and stakes
- \_\_\_ 100 foot rope (prefer nylon cord or parachute cord)
- \_\_\_ 4 clothes pins

### Patrol Gear:

- \_\_\_ Tents (ropes, poles and stakes) enough for all
- \_\_\_ Dining fly with poles, ropes, and stakes
- \_\_\_ At least 2 dutch ovens
- \_\_\_ Charcoal for the dutch ovens (if needed)
- \_\_\_ Patrol first aid kit
- \_\_\_ Water containers (buckets, jugs, collapsible plastic water containers)
- \_\_\_ Patrol cook kit
  - \_\_\_ At least three pots
  - \_\_\_ Frying pans



- \_\_\_ Hot pot tongs
- \_\_\_ Hot pot gloves/pads
- \_\_\_ Coffee pot
- \_\_\_ Patrol chef kit
- \_\_\_ Spatula
- \_\_\_ Large spoon
- \_\_\_ ladle
- \_\_\_ Can opener
- \_\_\_ Large chef knife
- \_\_\_ Smaller boning or paring knife
- \_\_\_ Patrol cleaning kit
- \_\_\_ Brillo pads
- \_\_\_ Biodegradable soap
- \_\_\_ Wash cloths
- \_\_\_ Plastic scrubbies
- \_\_\_ Roll of toilet paper in plastic bag
- \_\_\_ Trash bags
- \_\_\_ Paper towels
- \_\_\_ 1 Lantern and 1 stove
- \_\_\_ Patrol flag

## Tips:

Conduct shakedown. Go over individual equipment and clothing requirements - go through the equipment list. Make sure everyone has the basic equipment.

Inventory your camping gear and supplies to ensure everything is useable, filled (if necessary), and complete. Buy batteries/bulbs for the flashlights, toilet kit items.

Keep most of the personal camping gear (except for clothes) stored in the pack.

Store sleeping bag and foam (self inflating) pads unrolled. Unroll them as soon as the tent is set up in camp, ensures lofting. Keep tents zipped to keep critters out of the bag.

Set up tents after a trip to ensure all parts are dry. Then store all parts, tent, fly, poles, lines, and stakes in the same bag.

Footwear will be very important. Winter (wet or dry) they should have hiking boots or sturdy shoes, not sneakers/tennis shoes.

Packing tips:

- Pack things together in plastic bags
- Bag together a day's change of clothing, underwear and socks.
  - Or bag together all the underwear, separate bag for socks, shirts, pants, etc.

Lay out everything you will take, then pack according to the following rules:

- Pack first used items last (on top).
- Pack immediately needed items on top, for example, first aid kit, rainwear, flashlight, etc.
- Pack light and bulky items first, heavy and smaller items last. This puts the weight directly over your shoulders and thighs, and not over your butt.
- Suggest lash sleeping bag on bottom and foam pad/air mattress on top (outside of pack).
- Suggest lash tent to top. Tent partner carries pins, poles and ground cloth.

Watch the weather. It may be **HOT** and/or **COLD**. **BE PREPARED!**

Shower if possible, but when not possible, wash face, neck, arms/hands, and legs before bed. You will sleep more comfortably clean and the bag will stay cleaner.

Perform buddy tick checks just before bed.

**DO NOT HAVE A FLAME INSIDE THE TENT.** Do not set the tent up near the fire. If you are in an area with insects, do not spray insect killer or repellent on the tent or fly. This will damage the material.

DO NOT TAKE OR KEEP FOOD IN THE TENT. Bears and mini-bears love to find it.

## Tips for Backpacking Treks

Everyone is expected to have **ALL** gear in their packs, including crew gear. This may require the crew gear be pre-distributed before departure, or distributed and packs repacked in the parking lot at camp. If wet weather is expected, they should have wet weather gear packed on top, along with pack covers/large garbage bags.

The Crew Chief decides who will carry what. Assign crew gear permanently to each individual for the trek. Crew leader and assistant crew leader each have a copy of the list. On the shakedown, can redistribute to get best distribution among the crew. That way everyone knows who has what piece of equipment. All crew gear goes under the dining fly at camp set up.

Hike early. 8:00 AM is a good time to depart, Earlier if you have a long distance that day, This will let you enjoy the views, travel refreshed, set up camp early, avoid hiking in the heat of the day and participate in the programs where available, Even allows you time to side hike to a view or program, if desired.

Assign permanent trek tent mates. Sleep this way on shakedowns. This will allow the partners to get to know each others tenting personality traits, and allow for rearranging tent mates based on personality clashes. One plastic sheet, 5' by 7', should be carried for each tent. When the tent is set up, the edges of the plastic should be rolled under the rest of the plastic. This is done so that no plastic shows from under the tent. When it rains, the roll will keep the water from coming on the plastic between the tent and the plastic. The hidden edges will keep rain from running between the tent and the plastic.

Recommend four (assigned by tent pairs, on a rotating schedule) be service crew for each day, Write the schedule down on one of the trek overview schedules. They do it all, water, cooking, cleanup and bear bag. Don't have to worry that the water people aren't getting water for the cooks, or cooks heating water for clean-up, etc. Normally this is for breakfast and supper only. Lunches are normally eaten as a group on the trail with little clean-up.

Pack volume - get the largest suitable for each person. Each pack must be evaluated to insure it will carry the personal gear plus his share of the crew gear. Smaller boys may be assigned less crew gear, based on their size, but the pack must be able to hold it all. On the two shakedowns, teaching proper packing discipline is essential.

At all times recommend the following be carried, water, compass, knife, matches, rain gear. When not with your pack, e.g., side hikes, conservation project, etc., the following gear is a minimum hike kit: canteen, compass, matches, pocket knife, rain gear, jacket or heavy shirt for

each; and map, watch and whistle for every four people. For these side hikes, a minimum of four people is required.

How much should your pack weigh?

Not more than 20% of your weight. Your weight in pounds divided by 5 = maximum pack weight. Ideally, not more than 35 pounds without crew gear.

## How to build a First Aid Kit

"How do I build a first aid kit"?

First, assess what are the possible injuries that can occur from this activity? This will vary not only by the activity, but, to some extent, by where the activity will be. For instance, backpacking in the flat country of East Texas is different from backpacking in the remote mountains of Colorado.

Second, assess what types of materials will you need to handle the worst-case scenarios? Plan for more than one person to be seriously injured. You will also need to consider the length of time you may need to administer first aid. You may be 5 to 6 hours away from help in East Texas, and 3 to 5 days from help in Colorado. Therefore, you will need more bandaging materials, for instance, in Colorado than in Texas.

Third, assess how you can utilize one item in multiple ways, to reduce the number of items you need to take. A triangular bandage has more uses than a commercial arm sling, for instance.

Fourth, consider alternatives. Carry alcohol, but realize that there are other, better substances for wound management, and carry them, also. For a slight scratch or nick, you might wipe it down with alcohol then wrap a bandage around it and go on. No problem. For a more significant wound, however, you should use a triple antibiotic ointment, although there is some concern over allergic reactions to one of the ingredients. So considering alternatives would include a knowledge of allergies in the group. Carry aspirin, acetaminophen, and ibuprofen in significant quantities for the trip, and dispense them according to the needs and circumstances of the victim(s). Also, think creatively. In the case of serious wounds needing some thick dressing, pack some maxi-pads. They are sterile, individually packaged, have their own ties, and are cheaper than specialty dressings, and have a high absorption factor. Plus, if you have some young ladies along, they make great back-ups.

Fifth, consider how you will need to carry the supplies. If you were canoeing this summer, you would not be real concerned with weight, and may not let that really factor into what you was taking. When you go to Colorado next summer, you may be backpacking, and will have to consider weight as well. You are more concerned with insuring the materials stayed dry while canoeing than you will be while backpacking, however it's a good idea to always have two layers of water resistance between the supplies and the elements.

Some things are obvious like:  
gauze pads and rolls  
cleansing pads (alcohol or non)  
antibiotic cream  
triangular bandages  
bandaids  
tape

pain reliever  
benadryl  
tweezers  
ace bandage  
cold compress  
latex (or other types if allergic) gloves  
tongue depressor for finger splint

The most important points however are:  
Know how to use everything in the kit.  
Keep your knowledge and meds up to date.

#### PERSONAL (HOT SPOT) KIT CARRIED BY EACH MEMBER

moleskin  
bandaids  
foot powder  
small scissors  
sun screen (30 SPF or higher)  
chap stick

- 24 Advil or other ibuprofen pain reliever tablets\*
- 24 Benadryl or other antihistamine tablets for colds and allergies\*
- 24 Imodium AD or other over the counter medication tablets for diarrhea\*
- Mycitracin or other triple antibiotic ointment or cuts, scrapes, and burns
- Tolnaftate (Ting), miconazole (Lotrimin spray), or clotrimazole (Mycelex cream) for athletes foot or jock itch
- Spenco Second Skin for blisters
- 1 roll of adhesive tape
- 24 bandaids
- 10 2" by 2" gauze pads
- 10 butterfly bandaids
- 1 Cortaid or other non prescription hydrocortisone cream for rashes
- 1 Visine or other type eye wash
- 1 tincture of benzoine to toughen skin and help glue on moleskin  
moleskin and molefoam
- 2 needles for removing splinters
- 1 set of tweezers
- 1 Ace bandage
- 1 nail clippers
- 1 scissors for cutting moleskin and adhesive tape
- 1 CPR mask
- 1 set of latex gloves

- 1 wound flusher
- 1 bottle topical solution providone iodine skin cleanser
- extra moleskin
- extra molefoam

\* must receive permission before giving to non adult crew members

or go to the Wilderness Medical Associates Website  
<http://www.wildmed.com> and use their list of items.

## Fitting a Pack

One of the most important things to do is to know your torso length. Have someone take a tape measure to your spine. Start at the vertebra lump at the base of your neck, really just below the neck (cervical) vertebra, and measure you down to where the spine joins your pelvis. That is your torso measurement. The pack **MUST** be able to adjust to that measurement for a comfortable fit.

Check to see that the straps can be adjusted to fit your torso. You may also need to purchase some shoulder straps that curve enough to be comfortable for you, and/or that have a sternum strap that can be repositioned to a point comfortable for you.

If you decide to buy an external frame backpack, check to see that the bottom of the frame does not touch your bottom when the pack is fully loaded. Otherwise, after just a mile or two you will be very uncomfortable.

The tops of the shoulder straps must not touch your shoulders under full load, and the bottom of the frame must not touch your hips. The entire weight of the pack must be on your hips through the hipbelt. If the pack cannot be adjusted to these criteria, get another pack.

Most internal frame packs that I've seen have flexible frames that do not dig into you. But make sure there are no friction or pressure spots anywhere on your back, other than the hip belt. The shoulder straps must be well padded, curve to a comfortable fit that does not rub against you, and not ride on your shoulders. The purpose of the shoulder straps is to pull the pack or pack-frame up against your back, not to carry weight.

You must be able to tighten the hip belt so that there are no gaps between you and it, or else the weight will not ride on your waist, but somewhere else. Anywhere else and you will wear out quickly.

For the rest of the details, it becomes a matter of preference. Some folks do not like the "front" loading packs, but prefer top-loading only. Some like lots of pockets, some want only one large area.

Internal frames come with a top-loading and a front-loading compartment, a very large compartment on the flap over the top, and two large pockets on the sides with sleeves for my tent poles.

My experience with youth is the a Coleman Peak 1 pack is one the best. It is a front-loading pack, which is a bit of a disadvantage. However, the ability to adjust all straps to fit growing youth is amazing. It is also one of the few packs that I have heard (and seen first hand) that women as well as men can carry comfortably without buying a special pack for women



## GPS

A basic 12-channel model would be adequate. "12-channel" means the receiver is capable of receiving up to 12 signals simultaneously. Some less expensive units have only 2 channels, which means that they get a fix on 2 satellites, then on 2 more, and so on. Thus it takes several times longer than a 12-channel unit to get a fix on a position (also if you are using it in a moving vehicle or boat, it takes so long that it is impossible to get lock into a reading. The two most often used GPS systems are the Garmin GPS and Magellan. Basic systems are about \$150.00.

If you move up the price scale, you get more in the way of being able to save more landmarks and routes. This can be helpful if you are using it as a teaching tool and want to save a few "sample" routes at a few places where you regularly go.

The high end units (such as the Garmin GPS 3+) have so many bells and whistles as to be distracting. Especially if you are teaching navigation skills, I think it is better to have a paper map on which the student can plot his/her location and route, rather than having the map on the GPS screen. We want to teach the skills, not reliance on technology.

Some people think GPS is a high-tech replacement for a compass. Some think they don't need map and compass skills with a GPS. Others fear that because of GPS, map and compass skills will become a lost art and therefore knock GPS. These people don't understand a GPS can in NO WAY replace a map and compass! You cannot sight a bearing with a GPS. When standing still a GPS cannot even tell you what direction you are facing!

Good map and compass skills are absolutely essential to navigation. Never go anywhere without a map and compass! A GPS can, however, provide additional useful information. It can quickly provide information related to position, elevation, distances, speed, time, etc.

When considering a GPS purchase, one feature is computer to GPS interfacing. This has turned out to be a very useful feature. The ability to upload way point coordinates and routes as well as download tracks recorded by the GPS is very useful. There is software (commercial, shareware, and free) available which can manipulate this data and even draw maps with your way points, routes, and tracks. There is something neat about having a GPS track you as you hike cross-country, then have a PC draw a map precisely showing your route.

Below are a few insights:

- 1- Know your equipment - a GPS is a complicated piece of electronics gear. Each one is at least a little different from the rest and needs to be fully learned before attempting to utilize it to the fullest. When you first get a GPS you need to learn how to initialize it, input way points, determine its locking capability, etc. All these things have a direct bearing on how it will function.

2- Learn it's limitations - your GPS will just be ballast if it's batteries go dead. It has a limited operating life on a set of batteries. On exploratory hikes, push it to its limits and learn when it needs new batteries, in some cases after only 6 or 7 hours it went dead, not long enough for even a moderate backpacking trip. On subsequent hikes try different techniques for lengthening it's usefulness. For instance, only turn it on at critical junctions to get a lock and track your progress, and fix a waypoint, but don't keep a continuous record of your hiking. With techniques like this, you should be able to easily keep the GPS operating for over a week-long backpack. In a pinch, You can also borrow batteries from Mag Lites to get an emergency reading

3- Don't depend on having a fix. Walking under trees, in canyons, etc. will sometimes cut off your ability to navigate. Be ready to look for an open meadow or mountaintop to get a navigation fix in a pinch.

4- Use it to supplement your map & compass, not replace it - as it's been mentioned, the GPS can fail, run low on juice, or not be able to get navigation fixes. Use the map & compass as your primary navigation tool, but use the GPS to have a reasonableness check. The GPS's ability to get accurate distances to way points makes it great to see how far you've gone, or how far you have to go

5- Enhance your GPS's usefulness by finding a source for accurate way points. Your GPS navigation ability for finding a trailhead or campsite is only as good as your ability to get good coordinates of the sites in advance. Discover the TOPO! series of CDROM ([www.topo.com](http://www.topo.com)), it may have the area you are going to be hiking in. With it you're able to map out trails with GPS way points printed out for entry into your unit. It sure beats taking the coordinates off maps.

Good sites to start getting some understanding of GPS and how it works.

The following web site provide a huge amount of information about GPS products and technology in general. You're sure to find answers to your questions there as well as discover other interesting information.

Joe and Jack's GPS Info Web site - <http://joe.mehaffey.com/> then search the site for GPS

Peter Bennett's NMEA-0183 and GPS Info - <http://vancouver-webpages.com/pub/peter/index.html#gps>

#### GPS Receiver Manufacturers

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DeLorme	207-846-8900	<a href="http://www.delorme.com/">http://www.delorme.com/</a>
Garmin Int.	800-800-1020	<a href="http://www.garmin.com/">http://www.garmin.com/</a>
Magellan	909-394-5000	<a href="http://www.magellangps.com/">http://www.magellangps.com/</a>
Sony	800-222-7669	<a href="http://www.sel.sony.com/">http://www.sel.sony.com/</a> (under the electronics tab)
Trimble	800-487-4662	<a href="http://www.trimble.com/">http://www.trimble.com/</a>

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#### Recommendation:

The Garmin GPS III Plus, available at Wal-Mart for about \$350, I found something that was easily usable and well worth the cost. What sets the III Plus apart from the rest is that it has internal maps covering the entire country plus the ability to download the type of extreme detailed maps such as you see on the County by County atlases you buy in bookstores. I can find just about anybody's home street in the United States. Also the screen is extremely detailed so that you can see the upcoming river, creek, stream, mountain, recreational area, etc. as well as its name. It has the ability to download topographical contours as well. You can also output the information to a laptop computer screen, follow your progress as you drive, hike, boat, etc., and have a map of your route when you're done that you can print out on your printer. You can plan a route in advance and notice any deviation. Through third-party software, your Garmin connected to your laptop can even bellow out through your laptop speakers, "Turn right it ½ mile" or whatever. It's almost like having a radar on board, since you can tell where you are, where you've been, and what's around the next bend. You can even punch in the next rest stop and find out what services are there (gas, diesel, restaurant, name of fast food place, etc.)

## Stove Recommendations

Stoves for backpacking

Stoves for drive-in camping, two-burner Coleman stoves

white-gas stoves

Propane stoves

Multi-fuel stoves.

Peak-1 stove has worked well for me in the past. Peak white gas stoves that are all one unit, tank on the bottom, burner on the top. It's light. It starts easily, and heats like nobody's business. Little "O" ring on the adjuster needs to be lubricated once in a while to avoid leakage. Just make sure you do not leave fuel in the Peak I's because it can leave deposits in the generator. Learn how to replace a Peak I generator and clean the burner for continued good like.

Peak 1 Apex II stoves simmer and are much easier to start. The main advantage of the Apex over the regular Peak 1 stoves is that they burn longer between refilling and are easier to adjust to different settings. Since the burner is lower than the Peak 1 stoves, there is less danger potential if/when Scouts tip pots over.

Coleman 440 white gas.

Coleman stoves with the separate bottle are often smaller, lighter and avoid the problems with transferring fuel.

MSR WhisperLite Shaker Jet, on-off" model. The fuel bottles are light, especially compared to propane bottles, and the stoves are sturdy and easy to maintain in the field. MSR's take practice to light (priming paste "fire ribbon" works wonders), and are quite durable, and very thrifty with fuel. The MSR Whisperlite does not simmer and there are way too many parts that can break when scouts use it. MSR stoves are NOT for beginners. The best way to describe one is 'a blow torch with a attitude'. They can be damaged when being set up (make sure that the leg you are twisting around the burner is NOT the one with the fuel line in it, and yes you can twist it), it is easy to set a tent platform on fire if the stove is over-primed, and with the lower priced unit your menu is limited to things that are boilable.

MSR Dragonfly has a volume control on the gas flow to the burner, and is a bit beefier for holding larger pots. It's good for saving weight and for the flame control

Hose and fuel bottle spread out across your cooking surface, so it seems like the stove would tend to be in its own way when you are trying to cook with it.

Propane is instant on - no pumping or priming, but is a bit costlier to use as well. Disposing of the cartridges can be a pain but overall for weekend backpacking, no white gas to spill and flame up.

Single burner stove, screw on type propane canister that will screw on a 16.2 ounce bottle available in our area. These stoves are indestructible, quicker, easier and safer for the boys to use. There is no liquid fuel to handle, carry or worry about spilling. No priming, pumping and only minimal setup time required.

Have a preference for white gas stoves. I think a propane cylinder is heavier than a fuel bottle, however, there is a possibility of flare ups on a white gas stove. Canister fuels in the outdoors add to a moral problem with the wastefulness and they have a problem with the performance and special treatment needed at cold temperatures. As the temperature drops, the advantages of liquid fuel become obvious (except for instant frostbite if you spill some on flesh). Some of the newer blended gases don't work too bad in moderate cold but I have not gotten any good feedback with the temperature drops below 20.

Be sure to get a stove with a detachable fuel bottle. The stoves with integral fuel supply must be drained to a separate bottle for transport.

Stoves: I have an MSR, but I'm an adult. For the Scouts, the Peak One is virtually indestructible. We buy the padded bag to store them, load them in the center of nested cook set pots, and off we go. They light easily, are dependable, allow adjustment of flame height, and the cost is reasonable. We buy the basic white gas stove, no need for the multi-fuel unless you are going overseas. Add a couple of aluminum fuel bottles and you are set.

On the stove question, I have used both the peak one and the MSR's, both the whisperlite and the dragon fly. I personally feel the dragon fly is the way to go. It is easily field maintained and there isn't the danger associated with the transfer of fuel. If possible try to borrow some and use them on for a week-end and see which one you prefer.

## Trail Etiquette

In general:

Uphill hikers, riders or bikers have the right-of-way over downhill hikers, riders and bikers.

Always leave room for someone to pass single file on the left.

Horseback riders have the right-of-way over anyone else.

When approaching a horseback rider from the front, stop and get off the trail 2 or 3 yards if possible; when overtaking a horseback rider, follow the instructions of the rider.

Bikers yield the right of way to anyone else.

On the portage trail:

Those burdened have right-of-way over those unburdened.

Carriers of canoes have the right of way over those with packs.

If people of equal burden meet, the person closer to the end of their trail has right-of-way over someone closer to the beginning of their trail.

## Trail Planning

Next time you're heading into a wild place for a day or longer, spend just a few minutes before leaving to take some positive steps that will go a long way toward guaranteeing your safety:

When an emergency strikes, does someone at home know when and how to call for help?

Develop an itinerary. How many miles will you hike in a day? The guideline for hiking speed is one mile per hour on variable terrain and two miles per hour over flat terrain. Look at a topographic map and plan your trip accordingly. Plan the trails you will hike and the location of your campsites. Leave this itinerary with someone at home. If you don't show up as scheduled, they'll have the critical advantage of knowing where to send help.

Bring the right gear. This includes a map and compass, rain gear, food and water, extra clothing, a stove, and sleeping bag. Test your gear before you leave. Malfunctioning equipment could make a bad situation worse. Be prepared for an emergency and you may well avoid one.

Check the weather forecast. Before you leave, do a last-minute weather check. If it looks like a storm is coming in, don't hesitate to reschedule your trip.

Bring a first aid kit. And most important, know how to use it. Investing in wilderness emergency training is a sound option. Your first aid kit should include protective surgical gloves and antibacterial cleanup pads to reduce your exposure to blood and other fluids. Your clothing, sunglasses, ski goggles, and other gear can also block blood-borne pathogens. Be aware of these dangers, even with a good friend.

Select appropriate trips. Consider the strength and endurance required for your trip. You may have to suggest an alternate plan. The adage "You are only as fast as your slowest person" is very true.

Be aware of medical histories. Make sure any member of your group who requires medication has not forgotten it, and know where it is packed. Knowing this information should be part of your plan.

## Water Purification

First strain, then boil.

Check out the conditions where you will be camping. The risks vary considerably. In addition, water that contains quite a bit of either silt or tannin can clog up filters pretty quickly.

Whatever you get read the instructions thoroughly and always follow them carefully. Before you go out camping, practice using the filter and performing any field service.

If you're going to purify your water using an iodine treatment method, then there is no need to filter it afterwards. A good iodine product, such as polar pure or potable aqua, will do the job just fine, as long as it's used correctly.

Some people don't like the taste of iodined water, but if Scouts use it for a couple days, they don't notice the taste after awhile. And there are "neutralizers" that some folks use to avoid the taste.

In regards to the use of PolarPure iodine. In accordance with current BSA practices at Philmont:

- Leave the iodine in for one hour regardless of the conditions.
- If the water is extremely turbid or cold it's recommended to double the strength of the iodine.

One way to cut down on the amount of time spent purifying water and the amount of chemical introduced into your body is to purify ONLY the water that you will drink out of your canteen and use unpurified water for cooking and cleanup. Since water has to be brought to a boil for most foods, that's how to purify it. Use a rolling boil final rinse for dishes, that helps kill the bugs. One quick note about sugar flavored drinks and iodine. If, by chance, you should have some sugar residue in your canteen from previous drink (dumb idea in the first place because your canteen now has a smell and has to go up in the bear bag), the sugar will bond with the free iodine, thereby reducing the amount that can kill the bad stuff.

Use a container to mix all drinks. And, yes, it does go up in the bear bag at night.

One point AGAINST using just iodine is that some protozoa "critters," most notably cryptosporidium, are resistant to chemical treatment (due to the hard "shell" that forms their body). Chemicals can have a tough time penetrating their shells to kill them. The good news is that Protozoa are really big compared to the size of viruses and that makes them easy to filter out of the water. Viruses are tiny relative to the size of bacteria and spores and a filter with pores small enough to filter a virus would be next to impossible to pump or, would clog after the first couple of strokes. Chemical treatment is most effective against the smaller bacteria and much smaller viruses (even the best "filters" can not trap viruses). Iodine treatments (or other chemical treatments) will not neutralize all Giardia cysts within the recommended 30 minute contact time. It will take more like 8 hours for the Iodine to neutralize 99.9% of the cysts.



Use purifiers whenever possible in order to minimize the risk to the health of the Scouts by using methods that are known to be effective on all 3 critters -- protozoa, bacteria, and viruses! Maybe I fall on the "overkill" side, but I like to think of it as the "be prepared" side.

There are some folks who need to use filters, people who are allergic to iodine. You should be very cautious that these persons do not intake water containing iodine.

There is a difference between a purifier and a filter. A filter does what it says. It mechanically filters out particles, some more effectively than others. A purifier contains both a mechanical filter and has the addition of a purifying element. This usually is done by impregnating part of the filter with iodine or some other purifying agent.

You have to be careful not to pump a filter or purifier too fast. Take the cleanest water you can find. Don't take water from a stagnant source if possible. Stagnant water is a breeding ground for Giardia and other scum. Look for a circulating pool, this is best because the water is not stagnant but it's not roaring either. Water moving too swiftly contains a large amount of sediment. If water is extremely murky, allow it to settle in a pot for a period of minutes before pumping.

Ground water sources such as wells or springs are usually better than open sources such as streams and rivers. This is because Giardia and other pests are spread through fecal sources that contaminate above the ground.

When using filters or purifiers:

- Have the filter fit a Nalgene bottle.
- Have a filter cartridge that's easy to clean.
- Have the smallest size micron you can afford. You only have to get giardia once to know this is not a place to save \$20.

I would still take a chemical treatment as a back up like Polar Pure.

All filters clog. There are things you can do to maximize the amount of water you can process between cleanings. First, of course, is to avoid disturbing the bottom of the pool or stream with the inlet hose while you're pumping. The filter will still clog with suspended particulates - it just takes a little longer. The most effective way I've found to minimize clogging and maximize output is to use one of the large cooking pots. Fill the pot and carry it back to your campsite. Let the water settle out a bit and pump the water out of the pot with your filter as you need it. If you have the luxury of hanging the bucket from a branch or tree where you can raise the inlet hose higher than the body of the filter, it's even easier to pump. You can also secure a coffee filter around the end of the hose to filter out big particles.

Store your intake hose separately from your outlet hose.

