

WATER FILTERS & PURIFIERS

PRODUCT INFORMATION



QUICK TIPS

Treatment of some type is advised for water in the backcountry or overseas where potentially harmful microorganisms may exist.

Your unwashed hands can be a significant source of microorganisms. Always wash your hands with 100% biodegradable soap before filtering water.

Purifiers deactivate viruses, though viruses are rare in the North American wilderness (where filters are typically effective). Purifiers are prime for urban or overseas use.

Other options include tablets and UV light. Group size, trip length, and ease of use all impact your choice.

All filters and purifiers sold by REI meet Environmental Protection Agency guidelines.

REASONS FOR TREATING YOUR WATER

What could be purer than a mountain stream? Free-flowing water may create a lovely scene, yet backcountry water—even tap water in some countries—may contain disruptive microorganisms. Once ingested, they can induce diarrhea, nausea and exhaustion.

Is it possible to drink right out of streams and lakes without complication? Yes. Is it worth the risk? Most wilderness rangers say “no,” and thus advise against drinking untreated water.

SOME HARMFUL MICROORGANISMS

Protozoa, such as cryptosporidia and giardia, are relatively large and easy to filter out.

Bacteria, such as salmonella and E. coli, are smaller than protozoa and harder to remove.

Viruses (e.g., hepatitis A) are the tiniest pathogens of all. Only boiling, chemicals, UV light or purifiers can render viruses harmless.

WATER-TREATMENT METHODS

▪ **Filters and purifiers:** Filters trap protozoa (1–300 microns in size) and bacteria (0.1–10 microns). Purifiers also trap or kill viruses, which are too tiny (0.05–0.1 microns) for filters. The period at the end of this sentence

is about 500 microns. In developing nations where viruses may flourish, a purifier is vital.

▪ **No-pump options:** Traditional filters use an intake hose and a pump to push water through a filter element. No-pump options include bottles with elements in the sip tube, gravity-fed filters, a battery-powered oxidant purifier and UV-light treatment.

▪ **Oxidant purifiers:** The MSR MIOX makes a treatment solution from salt tablets that kills bacteria, giardia, cryptosporidia (given sufficient contact time) and viruses.

▪ **Chlorine-dioxide tablets:** These tablets kill pathogens by oxidizing (bleaching) them, adding little if any taste. They are considered safer than iodine or chlorine bleach. Expiration dates do appear on packages; replace tablets when the date expires.

▪ **Ultraviolet light:** Rather than filtering, the SteriPEN irradiates water, neutralizing all pathogens, even viruses. Its simplicity, swiftness and size appeal to travelers. Note: It works best with clear water.

▪ **Iodine treatment:** Available in tablet form, this is an inexpensive, old-school choice for viruses, bacteria and giardia. However, it is ineffective against cryptosporidia. Iodine adds a slight odor/taste. Carbon cartridges or taste-neutralizer tablets can remove it. Cold or murky water impair iodine. It is not recommended for pregnant women, people with certain health issues or long-term use.

▪ **Boiling:** Always effective. But it burns fuel and time (for stove setup; to let water cool).

TYPES OF FILTER MEDIA

Filters trap microorganisms in inner elements or cartridges made from a variety of materials (or a combination of materials):

▪ **Hollow fiber:** Hundreds of clustered, U-shaped tubes produce a rapid flow rate.

▪ **Ceramic:** Can be brushed clean repeatedly. Its longevity makes it economical over time.

▪ **Glass fiber:** Similar effectiveness to ceramic but not cleanable. Pleated models' large surface area extends their clog-free lifespan.

▪ **Structured matrix:** Unique, chemical-free virus-removal technology from First Need.

▪ **Iodinated resin:** Integrated in a purifier's main filter, which traps larger pathogens; its iodine inactivates any viruses in the water.

▪ **Carbon:** In the main filter or added on, it removes many chemicals, herbicides and pesticides. It can cut iodine or chlorine taste.

PORE SIZE

Most filters' absolute pore size is 0.2 microns, which traps the tiniest protozoan cysts and bacteria. Other factors, such as pore shape and water pressure, can also affect filter performance. Thus, at REI we state the type of microorganism removed rather than pore size.

OTHER CONSIDERATIONS

How easy is it to pump? Does it come with a bottle adapter? Are the hoses long enough?

FILTRATION TIPS

Avoid gathering water in any area where animal or human activity is obvious.

Filter water from still, clear sources. Many microorganisms tend to sink in still water; a tumbling stream keeps them suspended.

Rather than filter directly from a stream or lake, put water in a pot and filter from that. (Thoroughly disinfect the pot afterwards.) This lets you see how cloudy the water is before you send it through your filter. You can also cut down on clogging by allowing water to sit in a pot for an hour or so, then skimming the clearest water off the top.

HOW LONG WILL IT LAST?

Filters last longer with clean water. Silty or muddy water clogs a filter element quickly. Prefilters minimize the problem: Some models come with them; add-on prefilters are also available on some models.

It's also a good idea to pack along a backup treatment method, as well as replacement parts and a spare filter element.

CLEANING GUIDELINES

When cleaning your filter, recognize that you are handling a potentially contaminated object. Don't handle food or put your hands to your mouth after cleaning your filter. Wash your hands before and after handling a filter.

Follow manufacturer instructions for cleaning and storage. Let it dry out before storing it.

Visit REI.com/camphike for more items and expert advice.

Free shipping to any REI store; some restrictions apply. For details, visit REI.com or call 1-800-426-4840.

MORE →

PUMP FILTERS	Item #	Filter Medium	Removes	Weight (dry w/o Accessories)	Housing Material	Maintenance	Pump Force*	Pump Strokes Per Liter	Output (Liters Per Min)	Price*
Katadyn Hiker Filter	695233	Pleated glassfiber/carbon core	P, B	11 oz.	ABS plastic	Clean and replace element	8 lbs.	48	1†	\$64.95
Katadyn Hiker PRO Filter	720265	Pleated glassfiber/carbon core	P, B	11 oz.	ABS plastic	Clean and replace element	UA	48	1	\$79.95
Katadyn Pocket Filter with Output Hose	653573	Ceramic	P, B	1 lb. 3 oz.	Polypropylene	Clean and replace element	16.5 lbs.	70	0.86	\$289.95
Katadyn Varlo Microfilter	750927	Ceramic micro-strainer/pleated glass fiber	P, B	1 lb. 2 oz.	ABS plastic	Clean and replace element	UA	UA	2.2 fast-flow /1.1 long-life	\$89.95
MSR HyperFlow Microfilter	767564	Hollow fibers	P, B	7.8 oz.	ABS plastic	Back flush	UA	40	2.75	\$99.95
MSR MiniWorks EX Microfilter	695265	Ceramic w/carbon core	P, B	14.6 oz.	Polyurethane	Clean and replace element	10.4 lbs.	72	0.83	\$89.95
MSR SweetWater Microfilter	617913	Labyrinth w/carbon	P, B	11 oz.	Polycarbonate	Clean and replace element	1.6 lbs.	82†	1	\$79.95

NO-PUMP FILTERS	Item #	Filter Medium	Removes	Weight	Housing material	Maintenance	Bottle Size Or Flow Rate	Price*
Katadyn Micro Filter Bottle	720270	Pleated glass-fiber/carbon	P, B	7 oz.	Polyethylene	Replacement cartridge	21 fl. oz.	\$39.95
Katadyn Base Camp Filter	737349	Pleated glass-fiber/carbon core	P, B	1 lb. 1 oz.	(Waterbag) nylon	Clean and replace element	0.5 L/min	\$69.95
MSR AutoFlow Gravity Filter	768117	Hollow fibers	P, B	10.5 oz.	ABS plastic	Back flush	1.75 L/min	\$89.95
Platypus CleanStream Gravity Filter	767563	Hollow fibers	P, B	12.7 oz.	ABS plastic	Back flush	1.6 L/min	\$89.95
Sawyer 4-Way Water Treatment System w/Bottle	778042	Hollow fibers	P, B	5.5 oz.	Polypropylene	Back flush	34 fl. oz.	\$49.95
Sawyer 2L Water Treatment System	786392	Hollow fibers	P, B	11 oz.	ABS plastic	Back flush	1 L/min	\$69.95
Sawyer 2L Complete Water Treatment System	786393	UA	P, B	1 lb.	Food-grade ABS plastic	UA	1 L/min	\$69.95
Sawyer 4L Water Treatment System	778043	Hollow fibers	P, B	12 oz.	ABS plastic	Back flush	1 L/min	\$89.95
Sawyer 4L Complete Water Treatment System	778044	Hollow fibers	P, B	18 oz.	ABS plastic	Back flush	1 L/min	\$124.95

PUMP PURIFIERS	Item #	Filter medium	Removes	Weight	Housing Material	Maintenance	Pump Force	Pump strokes Per Liter	Output (Liters Per Min)	Price*
First Need Base Camp Purifier	662937	Structured matrix	P, B, V	3 lbs. 12 oz.	Pre-filter: acrylic/pump barrel: anodized aluminum/purifier housing: stainless steel	Replacement cartridge	UA	UA	1.9	\$658
First Need Trav-L-Pure Water Purifier	662933	Structured matrix	P, B, V	1 lb. 4 oz.	Polypropylene	Replacement cartridge	5.4 lbs.	44	1.37	\$198
First Need XL Purifier	767831	Structured matrix micro-strainer	P, B, V	1 lb.	Polypropylene	Replacement cartridge	UA	UA	1.89	\$109
MSR SweetWater Purifier System with ViralStop	671111	Labyrinth w/chlorine-based disinfectant solution	P, B, V	14 oz.	Polycarbonate	Clean and replace element	1.6 lbs.	82	1	\$89.95

NO-PUMP PURIFIERS	Item #	Filter medium	Removes	Weight	Housing Material	Maintenance	Bottle size or Flow Rate	Price*
Katadyn Exstream XR Purifier Water Bottle	708980	Glass fiber/iodine/carbon	P, B, V	8 oz.	Polyethylene	Replaceable cartridges	32 fl. oz.	\$49.95
MSR MIOX Purifier	709012	Salt solution	P, B, V	3.5 oz.	N/A	Replaceable salt/battery/test strips	NA	\$139.95
SteriPEN Adventurer Water Purifier	750366	Ultraviolet light	P, B, V	(w/batteries) 3.6 oz.	N/A	Replace batteries	NA	\$99.95
SteriPEN Classic with Pre-Filter	761906	Ultraviolet light	P, B, V	(w/alkaline batteries) 8.0 oz. / (w/lithium batteries) 6.4 oz.	N/A	Replace batteries	NA	\$89.95
SteriPEN Journey with LCD Display	769018	Ultraviolet light	P, B, V	(w/CR123A batteries) 4.5 oz.	N/A	Replace batteries	NA	\$99.95
SteriPEN Safe Water System	784449	Ultraviolet light	P, B, V	1 lb. 8 oz.	N/A	Replace batteries	32 fl. oz.	\$99.95
CamelBak All Clear UV Purification System	792819	Ultraviolet light	P, B, V	UA	Copolyester	UA	900 ml	\$100
CamelBak Deluxe All Clear UV Purification System	793855	Ultraviolet light	P, B, V	UA	Copolyester	UA	900 ml	\$130

CHEMICAL TREATMENTS	Item #	Filter Medium	Removes	Weight	Tablets Per Quart	Price*
Katadyn Micropur Tablets--20 Pack	743202	Chlorine dioxide	P, B, V	Package weight 0.8 oz.	1 tablet per qt.	\$9.95
Katadyn Micropur Tablets--30 Pack	695229	Chlorine dioxide	P, B, V	Package weight 0.9 oz.	1 tablet per qt.	\$12.95
Potable Aqua Chlorine Dioxide Tablets--20 Pack	736897	Chlorine dioxide	P, B, V	0.7 oz.	1 tablet per qt.	\$10
Potable Aqua Chlorine Dioxide Tablets--30 Pack	736898	Chlorine dioxide	P, B, V	0.9 oz.	1 tablet per qt.	\$13
Potable Aqua Iodine and Taste-Neutralizer Tablets--50 Pack	406032	Iodine	P, B, V	6 oz.	2 tablets per qt.	\$8.50
Potable Aqua Iodine Tablets--50 Pack	407071	Iodine	P, B, V	3 oz.	2 tablets per qt.	\$6.50

FILTER/PURIFIER ACCESSORIES	Item #	Price*	FILTER/PURIFIER ACCESSORIES	Item #	Price*
First Need Direct Connect Wide Mouth	767834	\$6	MSR HyperFlow Gravity Kit	768118	\$49.95
First Need Direct Connect Narrow Mouth	767835	\$6	MSR HyperFlow Maintenance Kit	768121	\$19.95
First Need Trav-L-Pure Element	662935	\$49	MSR HyperFlow Replacement Cartridge	768120	\$39.95
First Need XL Replacement Canister	767833	\$49	MSR MIOX Replacement Test Strip/Salt	709013	\$17.95
Katadyn Carbon Cartridge	709006	\$14.95	MSR Quick-Connect Bottle Adapter	768119	\$9.95
Katadyn Combi Ceramic Element	611581	\$85	MSR SweetWater Cleaning Brush	601603	\$6.95
Katadyn Exstream Cyst Filter--2 Pack	651544	\$18.95	MSR SweetWater Filter Cartridge	406145	\$39.95
Katadyn Exstream Virustat Replacement Kit	651545	\$34.95	MSR SweetWater Purifier Solution	671113	\$10
Katadyn Gulde Element	695231	\$44.95	MSR SweetWater SiltStopper	611748	\$19.95
Katadyn Hiker PRO Element	724044	\$39.95	MSR SweetWater SiltStopper Filters	611750	\$19.95
Katadyn Microfilter Replacement Element	720271	\$24.95	MSR NW/WM Filter Maintenance Kit	407235	\$19.95
Katadyn PF Element	698904	\$179.95	MSR WaterWork Membrane Cartridge	407237	\$64.95
Katadyn Rep Element/Mini Filter	407169	\$49.95	Platypus Filter Hose Kit	768131	\$15.95
Katadyn Replacement Carbon--2 Pack	709007	\$9.95	Platypus Replacement Filter Cartridge	768129	\$39.95
Katadyn Varlo Carbon Replacement--2 Pack	750930	\$9.95	Platypus Replacement Reservoir Kit	768130	\$39.95
Katadyn Varlo Ceramic Disc	750929	\$14.95	SteriPEN Pre-Filter Replacement Screen	743204	\$7.95
Katadyn Varlo Replacement Cartridge	750928	\$39.95	SteriPEN Water Bottle Pre-Filter	743203	\$14
MSR AutoFlow Replacement Cartridge	768391	\$44.95	SteriPEN Fits-All Bottle Adapter	784450	\$14.95
MSR EX Ceramic Element	695267	\$40	CamelBak All Clear Rechargeable Battery Kit	793856	\$30

FOOTNOTES: *Prices are subject to change and are for comparison only. †Based on manufacturers' statements: P = protozoa (including giardia and cryptosporidia--note that iodine alone is not 100% effective against cryptosporidia), B = bacteria, V = viruses. ‡Measured at 60 strokes/minute--lower values indicate easier pumping. UA = spec unavailable. NA = spec not applicable. Specifications based on REI testing and manufacturers' information available at time of publication.

BACKPACKING SKILLS & TIPS

These bits of information are not new to the experienced backpacker, and many have been published in issues of Backpacker Magazine. These pages may be a useful resource to Advanced Backcountry Skills. — Stephen Carpenter

Tips-

Hike twice as far/fast, carry half the weight. Don't overequip, share gear, Let your gear multitask. Ideally, carry $\frac{1}{4}$ but no more than $\frac{1}{3}$ your body's weight

Hydrate! Sleeping loses as much as 24 ounces of fluid through perspiration and respiration. Replenish early before hitting the trail, and drink often.

Sleep Better: EarPlugs or an Eye Mask works wonders. Count Sheep

Avoid Altitude Sickness(aka AMS, Acute Mountain Sickness): Hydrate constantly. Eat regularly (Low caloric intake compounds the effects of altitude. Climb high and Sleep Low. Maintain constant body temperature; (when your body bounces between hot and cold, you waste energy. Work your layers; peel when you're hot, add when you're cold. History of Altitude Sickness? Try a herb "ginkgo biloba", 120mgs, Twice a day, 3-5 days before arrival, and during your trek

"Take care of your feet, and your feet will take care of you" Buy a good fitting boot; shop in the evening as your feet swell throughout the day.

Don't be afraid to change how you lace your boots to get relief. Prevent Blisters: Grease Up/ Powder Up antiperspirant or powder on your feet.

Ventilate: On a break, remove boots. Rotate Socks several times a day.

Dry wet socks on pack as you hike, or an inside pocket.

Know your knots.

Wisdom-

The length of time between lightning flash and thunderclap in seconds equals the number you divide by 5 to determine your distance in miles From the lightning.

Your altimeter watch say you've traveled up in elevation, but you've been in camp all night. —Prepare for foul weather

For every 1000ft, air temperature drops an average of 4 degrees.

Not all campsites are level. Silicone dots on both sides of your sleeping pad will minimize slippage.

Everybody has a question or opinion. Check out the "unofficial" Philmont blogs/messageboard at: <http://www.philmont.com/page.php?page=site/home.php>

Gear-

Purchasing Gear: Warranty may be incentive to purchase an item. But waiting 6-8 weeks for a factory repair can ruin your trek plans. Ask the retailer about their return policy. Most will pay a few dollars more if the can get an immediate replacement from the retailer.

Repair Kit: 4ft Duct Tape (wrapped around trekking pole or Nalgene),
Super Glue (from eyeglasses to blisters and cuts),
Safety Pins (2-Lg for fabric tears, popping blisters, and slings, 2-Sm for eyeglass hinge repair),
Seam Grip (Repair boots, clothes, & boot stitching),
Multitool (w/ pliers, wire cutters, and screwdrivers)
Zip Ties (join almost anything),
Tent Pole repair tube (order from manufacturer if tent didn't come with one),
Sewing Needle (Sz 16-18 w/ 3ft carpet thread or dental floss),
Tent Cord (2-5ft),
Fine Sandpaper (2X2 squares plus 3 alcohol wipe packets for cleaning surfaces before gluing)

Boxers or Briefs?

A chafing question; Boxers over Briefs have been more successful at preventing *crotch-rot...I mean chafing. Boxerbriefs may work as well, but the goal is a wicking material that keeps you dry and reduces friction.
Some swear by the Marmot Middleweight boxerbriefs, other by bike shorts (*See First Aid)

Emergency Fire Starters cottonballs pre-lubed in petroleum jelly

Toughest Tested Baggie: Ziploc Double Zipper

FREE Water Containers

At your local convenience store, soft drink syrup cones in boxed 4 layer bladders, 2.5 & 5-gal capacity. The Coca Cola branded products are best. Remove the internal valve, wash, sanitize, dry, and roll up palm size.

Trekking Poles Vs Walking Stick

Trekking poles reduce fatigue and susceptibility to overuse injuries by absorbing as much as 20% of the impact on your legs. Poles aid balance, can increase your stride, and increase your daily mileage. Walking Stick?
(At least you can choose which knee to blow out)

First Aid-

Chafing (AKA Crotch-rot)

Baby powder is a good preventative, but a smellable. Instead use 100% Corn Starch (non-smellable) Corn Starch will also thicken those soupy one-pot-meals. When the rash takes a turn for the worse try Tucks Med. Pads (witchhazel oil) and/or Desitin diaper rash ointment.

Peripheral Edema (swelling of hands), is often the result of too tight shoulder straps, or standing for long durations. Symptoms typically disappear hours after a hike.

Resources-

www.backpacker.com/backpacking101

www.backpacker.com/trainer

www.backpacker.com/gear

www.backpacker.com/gearlist

www.backpacker.com/ultralight

www.forums.backpacker.com

www.mcnett.com

http://www.philmont.com/page.php?page=msgbrd/blogs.php&p_origin=Philmont&p_date=last10

How to Choose Rainwear

Your outer shell does more than keep off rain. Rainwear also protects you from wind, snow and cold. Different garment styles, fabrics and construction are available to suit a wide variety of needs.

1. Your choice of rainwear depends on expected weather and climate, your planned activities and your budget.
2. The main fabric choices for rainwear are waterproof/breathable, water-resistant/breathable, and waterproof/non-breathable.
3. Waterproof/breathable fabrics, available in different weights, are the most versatile fabrics.
4. Features such as vents, zippers and linings can add to your comfort.
5. Other considerations include a garment's style and cut, plus how well it packs.

Consider Your Needs

Choose rainwear appropriate for your outdoor plans. How and where will you be using it? Anticipate the most extreme conditions you might encounter and plan accordingly. Will you be in a canoe, waiting for the fish to bite? Hiking or running a trail? Visiting a rainforest? Skiing or climbing in a snowstorm? Walking around town?

Begin your search for the right rainwear by considering all of the following:

- Temperatures you expect to encounter most often
- Amount and type of precipitation you anticipate
- Types of activities where you'll use your rainwear
- Budget

Consider Fabric Choices

Fabric affects the performance and comfort of your outer layer. Rainwear fabric falls into three basic categories:

- Waterproof/Breathable
- Water-Resistant/Breathable
- Waterproof/Non-Breathable

Waterproof/Breathable - Because water vapor is able to pass through the fabric, waterproof/breathable shells are appropriate for the widest range of activities and weather conditions. Such fabrics are not 100 percent waterproof or perfectly breathable, but they do an impressive job of repelling water while allowing water vapor to escape as you work up a sweat.

Typical Uses—Waterproof/breathable fabric can be found in a variety of garments—technical parkas for skiing and mountaineering, more casual rainwear for hiking or around-town use.

Positives—Waterproof/breathable layers are an excellent choice for a wide range of weather conditions and activities. Their combination of breathability and moisture protection means that you can buy a single layer for everything from summer backpacking to backcountry skiing.

Negatives—Even waterproof/breathable fabrics have their limits. Exact performance depends on the specific type of waterproof/breathable fabric used, the outside temperature, your activity level and other factors. Waterproof/breathable fabrics are more expensive than other types of outerwear.

Examples—There are two types of waterproof/breathable fabrics: laminates and coated fabrics. Both are very effective. A membrane such as Gore-Tex®, REI Elements® or Marmot MemBrain® is laminated to a base nylon or polyester fabric. Or a waterproof/breathable coating is applied. Coated, waterproof/breathable fabrics include Hydroseal®, Columbia Sportswear Omni Tech Ceramic®; and Lowe Triple Point® Ceramic. All of these fabrics also have a durable water-repellent finish (or DWR) on the outside that causes water to bead up and roll off.

Water Resistant/Breathable - These shells serve as breathable outer layers for mild weather, light precipitation and high activity level. They're made of tightly woven fabrics (such as mini ripstop nylon) that block the wind, and they're also treated with a durable, water-resistant (DWR) outer finish to make water bead and roll off.

Typical Uses—Water-resistant/breathable fabrics are perfect for anyone who needs weather protection during strenuous outdoor activities such as running, cycling or Nordic skiing. They're also appropriate in warm conditions where breathability is important and the chance of heavy precipitation is low.

Positives—Water-resistant/breathable layers repel wind and light precipitation while providing excellent breathability to keep you cool when your body heats up. They tend to be lighter, less bulky and less expensive than other outer layers.

Negatives—They are not adequately weatherproof to protect you in harsh conditions or during extended periods of rain.

Examples—This rainwear is typically made of lightweight polyester or nylon, which is tightly woven to keep out wind and light drizzle while allowing water vapor to escape. The fabrics have a durable water repellent (or DWR) finish that causes water to bead up and roll off before it can be absorbed.

Waterproof/Non-Breathable - Typically made of a durable, polyurethane-coated nylon or PVC, these economical shells are water- and windproof, making them ideal for light activity in heavy precipitation.

Typical Uses—Waterproof/non-breathable layers are most commonly used during low-energy activities and when the chance of heavy precipitation is high. Because they're so affordable, waterproof/non-breathable fabrics are also used occasionally in moderate conditions. Examples include ponchos and vented rain suits.

Positives—Waterproof/non-breathable layers offer the ultimate protection from rain and wind. They are more durable and less expensive than most other outer layer options.

Negatives—Non-breathable layers can get extremely uncomfortable with even moderate exercise and outdoor temperatures. The moisture and heat that your body produces cannot pass through the fabric itself so these layers must be cut extremely loose (ponchos, for instance) or they must have generous vents to allow body heat and sweat to escape. This type of rainwear is generally heavier and bulkier than other styles.

Examples—PVC and polyurethane-coated nylon jackets, pants and ponchos typically make up this type of rainwear.

Consider Design Features

There's more to choosing rainwear than simply deciding on the right type of fabric. The cut of the garment and features such as vents and zippers also contribute to its overall function. Consider the following when making your rainwear choice:

Parka, Jacket, Anorak or Poncho—Full-zip jackets or parkas are easier to put on and take off than anoraks (pullover jackets). However, more zippers mean a higher risk of leaks. Parkas cover the hips for better overall protection, but shorter-cut jackets typically pack down smaller and provide ample coverage when paired with rain pants. Ponchos are inexpensive, waterproof and allow plenty of ventilation.

Full-Zip or Pull-On Pants—While more expensive than pull-on types, rain pants with full side zippers allow quick changes on the trail, opening wide for boots or shoes. Pull-on rain pants can provide better protection in continued heavy rain. Again, fewer zippers mean fewer chances for leaks. Some feature ankle zips to allow easier changes.

Hoods—Integral (permanently attached) hoods offer the best resistance against leaks. Hoods that can be rolled up or folded away when not in use are less bulky.

Elastic cords with toggles that can adjust the hood around your face can greatly increase comfort and visibility. Some rainwear styles have hoods with stiffened visors, and some even have brims that can be shaped to fit better. Look for adjustment tabs on the back of the hood to allow for better fit and visibility.

Chin Guards—Chin guards are fleece or knit synthetic fabric linings on the inside of the collar that protect your face from zipper abrasion and the cold, wet and frost that can build up from freezing breath.

Pockets—The more pockets an outer layer has, the easier it will be for you to store essential gear items. But keep in mind that pockets increase the weight of the layer and can result in more leaks. Pockets should be easy to reach, easy to open and close, and well protected against leaks. Some jackets feature a Napoleon pocket, a vertically zipped pocket that allows you to assume the posture of Napoleon who often posed with his hand inside his jacket. We're not sure about Napoleon's rationale. Today, the pocket is designed to secure small items where they can be easily accessed.

Linings—Free-hanging nylon or polyester linings are often used to protect waterproof/breathable fabrics from wear and tear. Mesh linings weigh less and breathe better than solid linings but don't offer as much protection. Some outer layers (like 3-ply Gore-Tex®) have lining materials that are attached right to the inside face of the outer layer fabric, eliminating the need for a separate, free-hanging liner. More technical jackets feature moisture-wicking linings for comfort during high-energy activities.

Sealed Seams—Sealed seams are a must for any waterproof outer layer, since they keep water from seeping through sewing holes. Sealed seams are not necessary for water-resistant layers. Some manufacturers, including those making Gore-Tex® garments, seal their seams at the factory. Others recommend that you apply seam sealer at home, although this is not as common as factory sealing.

Vents—Vents enhance a garment's ability to breathe, no matter what type of fabric is used in its construction. The larger the vent, the better the airflow, but the greater the risk of leaks. Typical vents include under-arm zips, mesh-lined chest pockets that double as vents, and mesh shoulder yokes with draft flaps across the upper back.

Storm Flaps—Storm flaps cover zippers, pockets and other openings to protect against leaks. They are commonly found on front zippers, underarm zips, full-zip pants and external pockets.

Technical Design Features - Some rainwear is specifically designed for alpine sports or cold, wet conditions. Look for the following if your planned activities include climbing, mountaineering, skiing or snowshoeing:

- ◆ Fabric Reinforcements— prevent wear and tear at the seat, knees, elbows or shoulders from pack straps or contact with rocks or snow.
- ◆ Articulated Elbows and Knees — allow excellent range of motion.
- ◆ Scuff Guards — protect fabric on the inside edges of pant legs from skis or crampons.
- ◆ Longer Sleeves — keep arms covered while reaching with climbing tools.
- ◆ Shorter Hems — allow easy access to the climbing harness.
- ◆ Drawcord Hem or Powder Skirt — seals out wind, snow and rain.



Sample Philmont Training Schedule

December

- Schedule two – 5 mile hikes with no packs.
- Work on Team dynamics and setting a pace

January

- Start once a week hikes
- Target 5 – 7 miles each
- No packs / lightweight packs
- Use local jogging / bicycle trails for mileage

February

- Continue once a week hikes
- Average 7+ miles
- Use backpacks that will be used at Philmont
- Pack misc. items to weigh 20-25 lbs.
- Work on adjusting packs to fit each participant

March

- Continue once a week hikes
- Work on off-road trails
- Average 7+ miles
- Increase weight in backpacks to 30-35 lbs.
- Good time to identify hikers that are not staying with the crew
- Check on gear status

April

- Continue once a week hikes on off-road trails
- Increase weight in backpacks to 35-45 lbs. Match to the individual to avoid overloading.
- Start mid-week bleacher work-outs. No packs but steady quick pace.
- Should be using backpacks and boots that are going to Philmont
- Replace a week-end hike with a shakedown campout (April / early May)

May

- Continue once a week hikes on off-road trails
- Increase weight in backpacks to a minimum of 40 lbs. Match to the individual to avoid overloading.
- Continue mid-week bleacher work-outs. Backpacks should be at least 25 lbs. Keep a steady quick pace.
- Should be using backpacks and boots that are going to Philmont

June

- Leverage the last hikes to see backpacks fully loaded with crew & personal gear. Add in extra weight to simulate extra food in each pack.
- Leave for Philmont – Have fun!

Local Training Spots:

White Rock Trail	http://www.dallasnews.com/sharedcontent/dws/trails/whiterock_trail.html
Arbor Hills Plano	http://www.plano.gov/DEPARTMENTS/PARKSANDRECREATION/PARKS/Pages/arbor_hills.aspx
North Shore Trail Grapevine	http://www.nttr.org/html/northshore.htm
LB Houston Nature Preserve	http://www.dorba2.com/node/205
Cedar Ridge Preserve	http://www.audubondallas.org/cedarridge.html
Cross Timbers Trail	http://www.cedarbayou.com/cross_timbers.asp
Sid Richardson	http://www.longhorncouncil.org/Program/Weekend-Camping/Camp-Maps.aspx
Meisenbach	http://www.circle10.org/site/c.owL1KgN4LxH/b.1680587/k.5711/Clements_Scout_Ranch.htm



Philmont Gear Checklist (one crew's list - adaptable to other treks)

Wear your complete Class A uniform (Scout Shirt, Shorts/Pants, Socks, Belt, clean shoes) for travel to and from Philmont. Pack a travel bag with (3 changes underwear/socks/t-shirts, toothpaste/toothbrush/soap/deodorant, full size towel, money for travel food - 2B/3L/3D, plus money for Philmont souvenirs). *NOTE: Nothing from this bag goes out on the trail.*

Check	Weight	Personal Trek Gear (includes items you will be wearing at the time)	Page
<input type="checkbox"/>	_____	Backpack (capable of 25# personal gear plus 15# of crew gear/tent/food)	24
<input type="checkbox"/>	_____	Pack cover	
<input type="checkbox"/>	_____	Pack repair items (2 clevis pins and 5 o-ring clips for each size pack)	26
<input type="checkbox"/>	_____	6-12 Plastic bags (freezer grade, assorted sizes + Rubber bands (8-10 large)	
<input type="checkbox"/>	_____	Sleeping bag (in stuff sack lined with plastic bag)	15
<input type="checkbox"/>	_____	Sleep clothes (t-shirt & cotton or gym shorts worn ONLY in sleeping bag)	
<input type="checkbox"/>	_____	Straps (to secure sleeping bag and tent to backpack - not bungee cords)	
<input type="checkbox"/>	_____	Sleeping pad (optional, but valuable for comfort + insulation)	17
<input type="checkbox"/>	_____	Hiking boots (broken in > 50 miles, recently cleaned & waterproofed)	9
<input type="checkbox"/>	_____	Moleskin - 1 pkg & Spare laces for hiking boots	
<input type="checkbox"/>	_____	Camp shoes (lightweight sneakers, capable of hiking in emergency)	
<input type="checkbox"/>	_____	Heavy wool socks - 3 pair	10
<input type="checkbox"/>	_____	Sock liners - 3 pair (polypro inner sock liners)	10
<input type="checkbox"/>	_____	Underwear - 3 pair (consider skipping if shorts have mesh liners)	7
<input type="checkbox"/>	_____	Hiking shorts - 2 pair	7
<input type="checkbox"/>	_____	Long sleeve shirt - 1 (not cotton)	7
<input type="checkbox"/>	_____	Long pants - 1 (Philmont requires if horseback riding or spar pole climbing)	7
<input type="checkbox"/>	_____	Short sleeve shirts - 3 pair (plain or Scout theme)	7
<input type="checkbox"/>	_____	Jacket (if heavier than just a light windbreaker, you can skip the sweater)	7
<input type="checkbox"/>	_____	Sweater (micro-fleece preferable)	7
<input type="checkbox"/>	_____	Hat/cap (flexible, with brim)	
<input type="checkbox"/>	_____	Rain gear (sturdy - GoreTex and Frogg Toggs seem to receive acclaim)	8
<input type="checkbox"/>	_____	Stocking cap (wool or polypro)	
<input type="checkbox"/>	_____	Glove liners (wool or polypro)	
<input type="checkbox"/>	_____	Deep bowl (less than ___ inches diameter - must fit into your wash pot), Drinking Cup, Spoon	
<input type="checkbox"/>	_____	Water bottles (3ea - 1 quart size or 1ea - 1 qt size plus 1ea - 2 qt platypus)	20
<input type="checkbox"/>	_____	Pocketknife (small, share with buddy)	
<input type="checkbox"/>	_____	Flashlight (small, new batteries and spares)	
<input type="checkbox"/>	_____	Compass (yes, everybody needs one)	
<input type="checkbox"/>	_____	Bandannas/handkerchiefs - 3 ea	
<input type="checkbox"/>	_____	Whistle (a safety must)	
<input type="checkbox"/>	_____	Money (\$10-20 in small bills for on the trail expenses, treats, or souvenirs)	
<input type="checkbox"/>	_____	Lip balm/vaseline tube (unscented !)	
<input type="checkbox"/>	_____	Deodorant (unscented ! or skip it all together)	
<input type="checkbox"/>	_____	Comb (or maybe not)	
<input type="checkbox"/>	_____	Toilet paper (personal stash in ziplock bag - replenish from crew)	
<input type="checkbox"/>	_____	Toothbrush	
<input type="checkbox"/>	_____	Towel (small, lightweight for mini-showers)	
<input type="checkbox"/>	_____	Sunglasses	
<input type="checkbox"/>	_____	Mouse bag (labeled with name, to contain all personal smellables)	
<input type="checkbox"/>	_____	Clothes line (50ft nylon 1/8", share with buddy)	
<input type="checkbox"/>	_____	Safety pins 12 large (to use as clothes pins)	
<input type="checkbox"/>	_____	Watch (inexpensive but with alarm, if possible)	
<input type="checkbox"/>	_____	Notepad & pencil	

Philmont Gear Checklist continued (crew gear)

Crew Trek Gear

Check	Weight	<i>Personal Trek Gear (includes items you will be wearing at the time)</i>	Page Ref
<input type="checkbox"/>	_____	Tents (Philmont has tents available too)	22
<input type="checkbox"/>	_____	Tent pins (7 per person if using 6# Philmont tents)	
<input type="checkbox"/>	_____	More Tent pins (12 per crew for Dining fly)	
<input type="checkbox"/>	_____	Ground cloth (under each tent to protect floor)	
<input type="checkbox"/>	_____	Plastic sheet (used by some inside each tent for an additional layer of waterproofing)	
<input type="checkbox"/>	_____	Philmont Maps (2 ea – entire ranch plus each relevant tri-section)	
<input type="checkbox"/>	_____	Collapsible water containers 2-3 ea x 2.5 gal (or several 4liter Platypus)	
<input type="checkbox"/>	_____	Water treatment method (optional – Philmont provides water treatment chemicals)	20
<input type="checkbox"/>	_____	Backpacking stoves – 2 (including fuel bottles, must run on white gas)	18
<input type="checkbox"/>	_____	Backpacking fuel bottles - 1 extra per stove of 1 qt size	18
<input type="checkbox"/>	_____	Fuel funnel	18
<input type="checkbox"/>	_____	Butane Lighter - 3ea (new)	
<input type="checkbox"/>	_____	First Aid kit (with Ibuprofen & Desitin)	
<input type="checkbox"/>	_____	Multitool (Leatherman or other)	
<input type="checkbox"/>	_____	Sewing kit (with heavy needle and thread)	
<input type="checkbox"/>	_____	Duct tape for equipment repair	
<input type="checkbox"/>	_____	Seasoning for cooking, if desired	
<input type="checkbox"/>	_____	Measuring cup with long handle for dipping boiling water	
<input type="checkbox"/>	_____	Nylon cord 3 ea x 50 ft. of 1/8"	
<input type="checkbox"/>	_____	Camera & film (consider 3 disposable cameras in ziplock bags)	
<input type="checkbox"/>	_____	Philmont Fieldguide	
<input type="checkbox"/>	_____	Toothpaste - 1 tube unscented or mix backing soda & ground salt	
<input type="checkbox"/>	_____	Sunscreen (unscented !)	
<input type="checkbox"/>	_____	Insect repellent (unscented & not aerosol !)	
<input type="checkbox"/>	_____	Cards or other game(s)	
<input type="checkbox"/>	_____	Padlock - 2 ea for crew lockers at base camp	

Crew Trek Gear (Philmont will provide)

<input type="checkbox"/>	_____	Dining fly (12" x 12" polyurethane-coated nylon = 4#)
<input type="checkbox"/>	_____	Poles – 2 telescoping for dining fly (1#)
<input type="checkbox"/>	_____	Cook pots (2ea - 8qt with lids, 2ea - 4qt with lids = 6#)
<input type="checkbox"/>	_____	Cook utensils (2 spoons, 1 spatula = 1/2#)
<input type="checkbox"/>	_____	Pot tongs - 2 (1/2#)
<input type="checkbox"/>	_____	Shovel (field latrine = 1#)
<input type="checkbox"/>	_____	Trash bags (yum-yum bag)
<input type="checkbox"/>	_____	Soap (biodegradable) for dishes, laundry, personal (bring 1-2 empty Camp Suds)
<input type="checkbox"/>	_____	Scrub pads
<input type="checkbox"/>	_____	Water treatment chemicals
<input type="checkbox"/>	_____	Rope for Bear bag (150ft, 1/4" nylon = 2.5#)
<input type="checkbox"/>	_____	Bear bags (2-3 plastic feed sacks = 1#)
<input type="checkbox"/>	_____	Plastic strainer & scraper (1/2#)
<input type="checkbox"/>	_____	AP Paper

Bears

Philmont and Texas have at least one thing in common -- both have black bears. Odds are, however, that you'll have a much higher frequency of encounter in the Sangre de Cristo Mountains than in the piney woods of East Texas. In any event, it's important to ensure your crew knows how to be prepared concerning potential bear encounters.

Bear Facts

Black bears are not always a true black. Their colors range from light brown to cinnamon to blonde to black; and may not be solid. Black bears are primary solitary creatures, except during breeding season in June and July. These bears are relatively smaller and less aggressive than their grizzly cousins and have the ability to climb. Black bears average 30 inches high at the shoulder; and 6 feet when standing on hind legs. Adult females are 150 pounds on average, and males average around 275.

Many campsite areas meet the requirements needed by bears to live. Food, water, space, and cover are usually abundant. Riparian areas have an abundant and diverse food supply which are preferred by the black bear.

Black bears are opportunistic eaters; they will eat anything that is available. They will eat dead animals at any time. Early in the summer, bears eat many of the grasses. As the summer progresses the grass becomes less nutritious and the bears begin to eat more insects. Late in the summer, fruits and berries ripen and are part of their diet.

The varied diet allows the bear to survive deep hibernation. They try to select foods high in carbohydrates, protein, and fat. Trail food contains all of these in high quantities. Since bears are attracted primarily by odors, campers must constantly work to prevent bears from obtaining our food and garbage. Active throughout the day and night, smellables must be hung at all times or kept under a watchful eye. Never leave your packs unattended until you have taken the following precautions.

Bear-muda Triangle

Once at your campsite, anything that might attract a bear's attention is kept within the *bear-muda triangle*. This triangle's vertices are the sump, fire ring, and bear bag line. Pay attention to these items when entering or selecting your campsite. The first order of business is to set up your fly inside this triangle. Perform your cooking and eating within this triangle. Avoid placing any tents in this triangle. Philmont (and state parks) may offer closely spaced campsites. Since there are multiple fire rings, sumps, and bear cables within each camp area, there are multiple triangles to be aware of and avoid.

Smellables

Keep any item that might attract a bear in the bear-muda triangle. Upon reaching camp and setting up your fly, immediately unload all smellables (see list below) under the fly. After cooking and cleanup, verify that all smellables have been collected and hang them in a bear bag from a provided cable or suspended between two trees. Never enter your tent or sleeping bag wearing your day clothes, because they typically contain food odors. Instead, change into sleep clothes that remain odor free and store your day clothes within the bear-muda triangle. Sleeping clothes are stored in a plastic ziplock within your sleeping bag.

- Food and snacks
- Water bottles used for anything other than water
- Toothbrush and toothpaste
- Clothing items with food spills
- Eating kit
- First aid kit
- Medicine
- Sunscreen
- Foot Powder
- Tampons and sanitary napkins
- Matches and lighters
- Camera film
- Disposable camera
- Campsuds and other soap
- Sump strainer and scraper
- Scrub pad
- Yum-yum bag

Consequences

If a bear gets food from a tent, dining fly, or pack they will likely associate food with that object. The next time the bear finds that object, they will think they have a meal. Chances are high that the bear will damage similar objects while looking for food.

Interactions between bears and humans will happen. Since over 18,000 people visit Philmont each summer, the bears become accustomed to humans by the end of the summer. Report sighted bears to the next staffed camp; note their color, size, distinctive markings, and any ear tags or collars.

When You Encounter Your Bear

- Never provoke a bear. Do not try to save your food or gear, both can be replaced.
- Form a large group and make human noises. Bang pots and pans and talk loudly.
- If a bear enters the campsite at night start talking in a normal voice. Get everyone out of his or her tents to ensure the bear has left the campsite.
- If the bear shows signs of aggression, huffing, popping its jaws, pawing the ground, or turning sideways, back off but stand your ground. Hold your arms out at full length to provide the largest possible profile.
- If you awaken to a curious bear examining you do not play dead. Instead, strike a tantalizing conversation with the creature. Using a calm voice let the bear know you open to different opinions than your own. Continue the discord; and, if possible, slowly retreat. By running, the bear will determine, your demeanor will communicate that you are bored with one-sided dialogue and your actions may provoke a visceral *mêlée*.

High Adventure Trek Age and Maturity Guidelines – A Guideline for Parents

High Adventure treks of 1 to 2 weeks duration are offered by many troops. But every Scout in the unit is not expected to attend each trek; indeed, the cost, preparation, and time commitment is such that multi-year planning, fund raising, and personal growth may be required – not to mention deciding how to fit it all into a busy schedule. These are, therefore, events for the boys to grow into as they mature throughout their years in Scouting. Boy Scout high adventure treks are offered through a variety of activity types. Some troops take advantage of the outstanding BSA nationally sponsored programs at Philmont Scout Ranch (backpacking), Northern Tier (canoeing), or Sea Base (sailing). Others participate in BSA council sponsored programs like those at Elkhorn Scout Ranch (mountaineering) and other locations. And some troops plan and execute their own treks to the mountains in Colorado, rivers in Arkansas, or elsewhere.

The following information was collected from a variety of respected sources, including the Philmont Staff Association, Northern Tier Canoe Base Charlie Guides, and North Trail District Backpacking Advanced Training. We hope it is useful in making your decision concerning your Scout's participation in a high adventure trek.

Young Scouts - Scouts younger than 13 (some would say 14 or 15) rarely possess the physical and mental maturity required for strenuous multi-day treks. Like a commercial airplane ride, once you are out on the trail or into the river there is not always a way to bail out. This can result in a disappointing trek for the immature Scout, their better-prepared peers, and the volunteer adult advisors.

Older Scouts - Not every older Scout (or adult !) is mentally and physically ready to undertake the rigors of a strenuous outdoor adventure trek. Its hard work, the food is different, the water tastes funny, and everyone smells. Its not unusual to find that a certain 14 year old Scout may be better suited than some of his older peers. An adult Scouter can't always tell in advance and the boys may not know themselves. Parents play a vital role to help ensure their Scout is mentally ready, physically fit, and emotionally prepared. You don't want to be deep in the wilderness when everyone comes to the same harsh realization.

We see too many crews attempting treks with younger, inadequately prepared scouts. There are many reasons, but most common is that parents feel their Scout may not get another opportunity to hike Philmont or canoe Quetico, et al. Therefore, some parents feel that a bad outdoor adventure trek experience is better than no trek at all. Unfortunately for these boys and the adult advisors (who have chosen to volunteer their vacation time), every day can become a nightmare. To have the best Scouting experience, it is important that the Scouts have the maturity to be successful. Some key points:

Physical Maturity - The scout must be capable of accomplishing the trek and he must be the one who wants to go. Often, parents are the primary motivating reason for a scout to attend. When it hails or when in pain with severe foot blisters or a sunburnt neck, what will sustain the scout is the fact that he chose to participate.

Personal Maturity - The scout must demonstrate an ability of being able to take care of his personal affairs. The scout must be willing to drink water that has been purified with iodine. He must understand the importance of remaining hydrated, and therefore drinking water that sometimes tastes different is required for his own health. The scout must be willing to eat food not for taste but for body fuel. Some dehydrated food does not taste very good but the scout must understand that he needs to fill up his tank every day. The scout must be willing to wash himself and clothes regularly to get the salt off his body and clothes, otherwise rashes will develop. The scout must understand that any form of horseplay is not tolerated because if anyone gets hurt, it may be days before the crew can get help for the injured treker.

Emotional Maturity - The scout must have demonstrated working within a patrol or crew environment either as a leader or follower. The scout must be willing to do his job correctly without being repeatedly reminded. The scout must be willing to wake up at reveille and not linger in his sleeping bag. The main reason advisors should not become involved with doing the in camp work is that the Scouts get tired and wait for the advisors to do everything; and THAT IS NOT BOY SCOUTING. The Scout's parents must have a willingness to cooperate with the advisors for the outdoor adventure trek. Some parents may not like to discuss a Scout's Learning Disabilities, Emotional Disabilities, Attention Deficient Disorders (ADD) or Attention Deficient Hyperactivity Disorders (ADHD). While mainstreaming may be a goal of our educational institutions, unskilled and uninformed outdoor adventure advisors do not have the training to manage these Scouts in the midst of an outdoor adventure trek. Each case needs to be reviewed SEPARATELY with the parents to determine whether the Scout, his peers, and their adult advisors will have a successful trek.

As always, your Scoutmaster and the experienced Scouters in your troop and district can provide valuable experience to help you decide when your Scout is ready to participate in their first High Adventure Trek. Please use these resources !

