



Troop 281 Camping Gear Guide

This guide was assembled as a resource for Troop 281 scouts and their families so they can be prepared for campouts, and make the most of gear purchasing. Scouts will learn more during skill sessions at scout meetings. This resource isn't all encompassing, but should give you a good start in understanding what equipment is needed and how to make a smart purchase. Camping gear has improved significantly over the years. Gear is significantly lighter, more efficient, and effective than what was available in years past. Gear can also be very expensive without thrifty shopping and planning... especially for scouts who are rapidly growing out of their boots, backpacks, etc. With all gear, its important to consider the conditions it will be used, frequency of use, if he will (or not) outgrow it, and pay attention to the weight of the equipment which will become important on future backpacking trips... especially if Philmont High Adventure is in his future.

We recommend spreading out the purchase of gear over time, prioritizing what is needed, and shopping for value. The most important gear needed for a new scout includes having an appropriate sleeping bag, sleeping pad, boots, rain gear, and clothing. These essentials are described below.

Sleeping Bag: Details about sleeping bag options are provided below from a Backpacker Magazine article. For a one sleeping bag solution, we recommend a mummy bag with synthetic fill that is rated 0 – 20 degrees. Mummy bags are more efficient (lighter & smaller) and far warmer than a square bag. A good rule of thumb is to have a sleeping bag that is rated lower than the lowest temperature forecasted for the campout... bags generally range from -15 degree to 45 degree ratings and everything in-between. You can always unzip a sleeping bag for warmer temperature outings, but it is difficult to be comfortable if the temperature is at or below the temperature rating of the bag. Experienced campers often have two or even three sleeping bags for different seasonal temperatures... if one sleeping bag is in the budget, a 20 degree bag will suffice for almost all Troop 281 campouts. One budget friendly trick used for camping in extremely cold temperatures, is to double up sleeping bags (i.e. summer bag inside of a 20 degree bag).

Down bags are more expensive and completely loose their insulating ability if they become wet.

Sleeping Pad: Very important for comfortable sleeping. Don't overlook the importance of having a sleeping pad! Pads are not just padding for uneven ground... but more importantly protect you from the cold ground that will steal heat from your sleeping bag. Your body weight crushes the insulation in the sleeping bag against the ground, making the bag much less effective. There are four types of sleeping pads: air mattresses, open cell foam pads, closed cell foam pads, and self-inflating pads. Air mattresses are not recommended because they are very poor insulators. Closed cell foam pads are the most popular with scouts. They are excellent

insulators and are inexpensive (\$25 range)... the only downside is the cushioning isn't very good. Open air foam pads are more comfortable but are more bulky and don't have as good of insulating power. Self Inflating pads have the best design as they are both comfortable and have great insulation. The downside to self inflating pads is their price \$75/\$100 range. If you have a self inflating pad, storage is important. Always store it inflated with the valve open, and away from pets that might enjoy chewing on it!

*Troop 281 has one spare cell foam sleeping pad in the lockup if you need borrow it to space out your gear purchases.

Important considerations:

- Should be long enough to fit under entire sleeping bag.
- Pad material with some texture prevents sliding off.
- They come in a wide range of weight, insulation ratings, and folding size, and various optional features. Weight and size becomes important for backpacking trips.

Boots- Boots are important because it isn't fun to have wet feet on a campout, and even if its not raining scouts step in puddles and walk thru grass covered in dew. Boots also protect the feet and reduce the risk of turning an ankle. When a scout is changing foot size frequently, it doesn't pay to buy expensive boots. We recommend buying inexpensive boots until they settle into a stable foot size and need a good hiking boot for a backpacking trip or Philmont.

Clothing- The rule of thumb with clothes is to stay away from anything that has any cotton, and to think layers. Cotton gets wet and stays wet and fails to wick moisture away from the skin. Wool and synthetic fabrics are far warmer and effective at wicking moisture and quickly drying. Layers of clothing are warmer than a bulky coat. They allow for adjustment to changing temperatures, and are more effective for staying warm. Think about clothing in three layers:

1. Base or wicking layer which is in direct contact with the skin. This base layer includes long underwear, T-shirts, boxers/briefs, socks and sleepwear. The base layer is important for moving moisture away from the skin. Exclude as much cotton as possible from the base layer.
2. Insulation layer provides warmth when needed. Fleece, nylon, and wool are the most popular fabrics for this layer. This layer is frequently adjusted by adding and taking away (hiking vs. standing around camp), and changing temperatures and weather conditions. Its better to have multiple thin insulation layers rather than several big/bulky items. "Switchback" scout pants are perfect for most campouts.
3. Outerwear and Rainwear- is designed to protect from the elements such as wind, rain, or snow. The insulation layers are not effective if a layer to block the wind is not worn. Windbreakers

Rain Gear- Rain gear is an essential component that needs to be brought on all camping trips. Without proper gear, a shower or an all day rain can be uncomfortable, or can put you at risk for hypothermia. Ponchos are common but not recommended because they do not cover your

whole body, and are never breathable. Not all jackets are effective. Some are water resistant, and a jacket that is water proof but went thru the washing machine, or is well worn often loses its water proofing effectiveness. Rain pants and jacket are recommended. If they are made out a breathable fabric, it's even better because they allow moisture to leave but not come in. A good brand that is affordable and meets all of these requirements is "Frogg Toggs" which is available at several of the stores listed below. For example, they sell for about \$60 (pants and jacket) at Bass Pro Shops. There are many other options available at a wide range of price; ideally you want to make sure they are made from a breathable material. Additional rain gear options you may consider adding over time can include gaiters that attach to the boot and lower leg to better protect feet, and a water proof brim hat.

Cleaning rain gear- a common mistake many people make is throwing the jacket and other equipment into the washing machine, which can diminish the gears effectiveness. Follow the cleaning directions that come with the gear which may involve using a mild detergent, gentle hand washing, etc. You can also treat it with water proof coating sprays that can help extend its useful life.

Backpacks: Purchasing a backpack does not have to happen during the first year. For most 281 campouts, duffle bags and a daypack will work ok. For a daypack, older school backpacks usually work well. Day packs are important to carry the ten scout essentials for those day hikes and throughout the day on regular campouts.

For first year scouts, any planned backpacking trips will be geared as day hikes rather than overnight backpacking adventures. Backpack needs will change as the scout grows, and are only required for high adventure trips and backpacking trips. A scouts ability to carry a full backpack will improve significantly as they grow in size and strength.

When it comes time to purchase a backpack, there are many options. There are four major things to consider: type, fit, capacity, and features. It's recommended that backpacks are tested by the scout for size and comfort. All backpacks should have a durable hip belt. This is important so that the weight is carried by the hip and lower body (which are much stronger) rather than the shoulders. Some backpacks have the ability to adjust as the scout grows and should be taken into consideration. Another important consideration are compartments, zipped pouches, etc. These make the organization of gear much easier than a backpack that has only one or two compartments.

Where do I purchase gear?

There are many options available. Below are some options available locally and via Internet.

Dicks Sporting Goods- Located in Eastgate off of route 32, they have a camping section and sell almost everything you would need for a camping trip. Dicks is primarily geared for sports, but has a surprisingly good selection and often good deals on camping gear and clothing.

Bass Pro Shop- located in the old Forest-Fair Mall on the north side of I-275. Similar to what you will find at Dicks Sporting Goods, but a bigger selection is available in most items, and they specialize in outdoor activities.

Benchmark Outfitters- located in Blue Ash off Kenwood Road. This is not the store to find the low cost items, but is well known for their quality. They have the highest quality products and best customer service for camping gear in our area. The staff at Benchmark is experienced campers, and many are eagle scouts. They will spend time with you explaining your options and helping you make a good selection based on your needs. Be sure to tell them you are buying for the boy scouts to get a 10% discount.

REI is comparable to Benchmark Outfitters- dedicated to camping and outdoor adventures. They have helpful staff and a good selection. Located in Norwood 2643 Edmondson Road, they are a closer drive than Benchmark. Like Benchmark, the gear is quality brand-name but can be expensive.

Great Miami Outfitters- **STORE HOURS:**

Mon - Fri: 10AM - 8PM Saturday: 10AM - 6PM Closed Sundays

LOCATION:

25 E. Linden Ave. Miamisburg, OH 45342

Phone: (937) 847-8787 Toll Free: 1-877-947-8787

On-line options:

The best place to find good gear at a low cost is on-line. The big drawback is not being able to try out the gear, ask questions and compare. Here are reputable on-line companies that have a good selection of gear. Check out their sale/clearance items for good deals.

- campmor.com
- Sierratradingpost.com,
- rei-outlet.com, or rei.com
- northernmountain.com
- backcountrygear.com

Some scouts have had luck at scoutdirect.com. Their prices are very low, but you need to know what you are buying because the site isn't as user-friendly, and their product availability frequently changes.

There are many options for purchasing clothing. Good options for inexpensive clothing are using old sports clothing that is typically made of synthetic materials. Inexpensive clothing can be found at thrift stores such as: Goodwill, St. Vincent de Paul or the Salvation Army. In Anderson, good clothing deals can be found at Gabriel Brothers. Another good low cost option is the Columbia Outlet store in Monroe OH near Middletown. The same outlet mall also has and Under Armour store.

Personal Overnight Camping Gear for Scout Outings

Here is the complete list of what the Boy Scouts of America suggest that Scouts bring on outdoor activities.

Provided by Troop 281:

- Tents and ground cloths
- All cooking and eating gear (plates, utensils, cups, stove, pots, etc.)
- Lanterns and Propane
- Axe and Saw
- Activity supplies
- Troop First Aid Kit
- Portable Shelters
- Coolers and Totes for Food

* Some exceptions for certain campouts such as backpacking, high adventure, etc.

Gear Scouts bring:

- The 10 Scout essentials
 1. Pocketknife (*Totin' Chip card required!*) Backpack, Daypack or Dufflebag
 2. First Aid Kit
 3. Extra clothing
 4. Rain gear (rain suits recommended...ponchos are ineffective)
 5. Water bottle
 6. Flashlight (headlamp recommended)
 7. Extra food/trail food
 8. Matches and fire starters
 9. Sun protection SPF 30 (no aerosol)
 10. Map and compass
- Sleeping Bag
- Sleeping/ground Pad
- Clothing (**No Cotton!!**) Wool or synthetic materials are highly recommended
 - Change of clothes
 - Base layer
 - Extra layers
 - Wool Socks
 - Waterproof Boots
 - Warm Hat
 - Gloves
 - Coat/Windproof Jacket
- Toiletries
 - Toothbrush
 - Tooth paste
 - Comb
 - Deodorant
 - Camp Towel/wash cloth
- Day Pack (old backpack from school will work)
- Scout Handbook (with a cover and in a zip lock bag)
- Medications (give to ASM, Medical for dispensing)

Optional/Extra:

- Sunglasses
- Watch
- Fishing gear (specified trips)
- Swim suit (specified trips)
- Work gloves
- Notebook

- Camera
- Whistle
- Nylon Cord
- Replacement batteries
- Non-aerosol insect repellent

For trips further from home:

- Extra spending money on longer trips (for snacks at the gas station stop). Some trips may require money for a meal or two.
- Electronic devices only for trips over a two hour drive

Gear provided by patrol

- Food- Grubmaster
- Ice (ice machine available at the church- Grubmaster)
- Patrol Flag- Flag Bearer
- Duty Roster, Menu and Shopping List

Boy Scout 10 essentials: Items every Scout needs in the outdoors

By Karen Berger

From the March-April 2004 issue of *Scouting* magazine

Don't leave home for the outdoors without these basic items. They could save your life.

THE 10 ESSENTIALS are items every outdoor adventurer should include in his or her pack. The original list was devised in the 1930's by The Mountaineers, a Seattle-based hiking, climbing, and conservation organization, whose members get out in some truly dreadful weather—including in the rainy North Cascades, along the Olympic Peninsula, and on such snow-covered peaks as Mount Rainier.

The Mountaineers' essentials list was designed to keep climbers safe in case of accident, injury, or misadventure. Over time, like any classic, the list has been used and altered, but the core remains the same. Seventy years later, the list is included in many outdoor guides, including the latest edition of the Boy Scout *Fieldbook*.

Here's what you need—and why.



1. POCKETKNIFE OR MULTIPURPOSE TOOL.

These enable you to cut strips of cloth into bandages, remove splinters, fix broken eyeglasses, and perform a host of repairs on malfunctioning gear—not to mention cut cheese and open cans.



2. FIRST-AID KIT.

Prepackaged first-aid kits for hikers are available at outfitters, but you can customize your kit with your favorite blister treatment and ointments for common outdoor ailments (a topical antihistamine, for example, to take care of itches and rashes).



3. EXTRA CLOTHING.

Bring one more clothing layer than you think you'll need. Two rules: Avoid cotton (it dries slowly and keeps moisture close to your skin), and always carry a hat. A windproof, water-resistant fleece jacket can help you withstand windy conditions. Plastic baggies or extra socks can help keep hands warm.



4. FLASHLIGHT OR HEADLAMP WITH EXTRA BATTERIES.

Headlamps and flashlights allow you to find your way in the dark or signal for help. Headlamps are convenient for hands-free use.



5. RAIN GEAR.

Remember that high mountains make their own weather, and storms can erupt suddenly and violently. Even in a temperate summer forest, a dousing rain can quickly chill you to the point of hypothermia. Rain gear protects against not only rain, but also wind, cold, and even insects.



6. WATER BOTTLE.

Without enough water, your body's muscles and organs simply can't perform as well. You'll be susceptible to hypothermia and altitude sickness, not to mention the abject misery of raging thirst. Always carry plenty of water and stop often to drink.



7. MAP AND COMPASS.

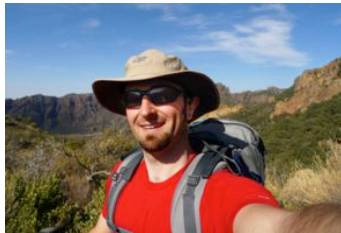
A map not only tells where you are and how far you have to go, it can help you find campsites, water, and an emergency exit route in case of an accident. A compass helps you find your way through unfamiliar terrain—especially in bad weather where you can't see the landmarks. A GPS (global positioning system) can also help—but it is no substitute for knowing how to read a map.



8. MATCHES AND FIRE STARTER.

The warmth of a fire and a hot drink can help prevent hypothermia. Also, a fire can be a signal for help if you get lost. Carry matches and a small amount of fire starter protected in zipper-locking bags. Dripping candle wax on match tips helps waterproof them. Commercially available windproof and waterproof matches are also a good choice.

Fire starter is anything flammable, from pocket lint to filled-in journal pages. Pine needles and birch bark make especially good starter, even when wet.



9. SUN PROTECTION AND SUNGLASSES.

Especially above timberline, when there is a skin-scorching combination of sun and snow, you'll need sun-glasses to prevent snow blindness and sunscreen to prevent sunburn. Buy sunglasses that are ultraviolet ray (UV) resistant and have side flaps (ventilating holes that keep them from fogging).

Don't use sunscreen that's been sitting in your medicine cabinet for a season or more: It has probably lost at least some of the effectiveness of its sun-protection factor (SPF), a rating of how well and how long the sunscreen will keep you from getting sunburned. A light-colored hat with a wide brim is also an effective sun deterrent. In desert conditions, consider using a long-sleeved light shirt and lightweight loose-fitting long pants. Zipper-off legs give more versatility.



10. TRAIL FOOD.

Nothing boosts energy and spirits as much as a quick trail snack. You can make your own trail mix with nuts, raisins, banana chips, and chocolate bits. The combination of sugar, fats, and potassium tastes great and provides quick energy, long-lasting calories, and replacement electrolytes.

Always take a bit more food than you think you will need. A lot of things could keep you out longer than expected, like a lengthy detour, getting lost, an injury, or difficult terrain.

SLEEPING BAG TYPES

Bags fall into three basic categories.

1. Summer
2. Three-Season
3. Winter

Summer

Summer bags are suitable for temperatures of about 30°F and higher. They're lightweight (because less insulation means less weight), and they pack down tiny (often as small as a cantaloupe). Summer bags often have full-length zippers, which allow you to zip them almost completely open for ventilation (or to use as a quilt) when the night gets really steamy. Most summer bags are simple sacks without too many bells and whistles. You won't have much need for a hood or a draft collar (see below for descriptions of features) on hot July nights, for instance, so why spend the money on things you don't need?

Three-Season

Ideal for temperatures of about 20°F and above, these bags are best suited for spring and fall trips, as well as summers in the high mountains when temps can dip below freezing at night. Good three-season bags have added features to combat colder temperatures like cinch-able hoods, draft collars, and zipper draft tubes (see below for descriptions of features).

Winter

These puffy cocoons, good for about 20°F and below, have all the features of a three-season bag (cinch-able hoods, draft collars, zipper draft tubes), but are beefed up with more insulation. Winter bags are always bulky to pack, so you'll want to buy a good compression stuff sack to help you tame it.

Temperature Ratings

All [sleeping bags](#) have temperature ratings, which indicate the minimum temperature that the bag is designed to handle. Temperature ratings should be taken with a grain of salt however, because as of now, there is no standard, universal method for

determining ratings. This means that manufacturers are free to make their own claims about their bags' warmth. In most cases, these claims are realistic, but in some cases, temperature ratings are optimistic.

A new standardized rating system has been widely adopted in Europe, called EN 13537. Some U.S. bag makers have also adopted the system (and others are planning to). The system assigns bags a series of ratings:

- Upper limit = the highest air temperature at which the average man can sleep comfortably.
- Comfort = the lowest air temperature at which the average woman can sleep comfortably.
- Lower limit = the lowest air temp at which the average man can sleep comfortably.

The ratings are established after a set of standardized tests using a heat-sensored mannequin.

Until a universal temperature standard is adopted, your best bet is to use temperature ratings on the hangtag as a starting point and then use your gut to guide you. If you know you're a cold sleeper and a bag looks too thin for you, go with a plumper one.

INSULATION TYPE

One of the first decisions you'll be faced with is this: down or synthetic? Here, the differences and pros and cons of both:

Down

Down is the lightest, most efficient insulation you can get. It's also the most compressible (a big plus for backpackers carrying big loads), and it retains its loft (and therefore insulating power) longer than synthetics. Down is generally more expensive than synthetic, but it also depends on the fill-power, which is a way of rating the quality of down. Fill-power ratings range from about 600 to 900. The figure refers to the number of cubic inches one ounce of down consumes in a beaker. And since the warmest down is the loftiest down, the higher the number the warmer you're going to be.

Synthetic

There are many different types of synthetic insulation, but it's generally a fluffy polyester material that doesn't absorb water, making it a smart choice for any camper who might be faced with wet conditions. Although down bags are typically bulkier and heavier, they are much less expensive.

BACKPACKER Tips: Selecting the right sleeping bag shell fabric

This really only comes down to one decision: do you need a waterproof bag or not?

Only answer "yes" if you truly do need that level of protection: if you frequently camp without a tent, for instance, or you live in the Northwest where wet conditions are prevalent. If you decide you need a shell, you'll pay for it (up to \$100 more).

A waterproof bag must be shelled in waterproof/breathable fabric (much like that of your rain jacket). If the fabric doesn't breathe, although you'd keep out the rain, you'd soon be sleeping in a puddle of your own sweat. Waterproof bags also need to be seam-taped, so water doesn't migrate inside through the stitch holes.

BAG SHAPES

Bags come in several cuts and each shape is designed to appeal to a different type of camper.

Mummy

A tapered cut through the legs and feet give mummy bags maximum thermal efficiency. A bag's primary job is to contain the heat your body generates and when interior space is smaller, the bag is more efficient. Although most mummies have plenty of room through the shoulders and torso, restless sleepers and broader campers may be more comfortable in an alternative cut. Another benefit of mummy bags: because they use less materials and insulation, they're lighter-weight and smaller to pack.

Rectangular

With no taper at all through the legs, rectangular bags are not as thermally efficient, and are best suited for backyard campouts and basement sleepovers.

Semi-rectangular

A happy medium between mummy and rectangular shapes, semi-rectangular bags are a good choice for campers who can't cope with the confinement of a mummy bag but need more warmth than a rectangular bag has to offer. They're bulkier and heavier than mummies, but give you a bit more thrashing room.

BACKPACKER Tips: Sizing your sack

It's a sleeping bag, not shrink-wrap. Here's how to make sure your bag fits perfectly to ensure

that you get the best night's sleep.

1. Try before you buy. Crawl into as many bags as you can, wearing appropriate layers, to get an overall idea of the way each brand and type fits.

2. Integrate the sleeping pad. If a bag has a sleeping pad sleeve or straps, rig it that way in the store, because a pad will reduce the bag's interior volume, ultimately affecting its fit.

3. Check the closures. Zip it up, down, and up again. If a zipper snags now, it will in the field. Cinch the hood and draft collar down. Check for a comfortable fit, a snug seal around your head, no scratchy Velcro rubbing against your cheek, and ease of exit.

4. Roll around. If you're a cold sleeper or cold-weather camper, opt for a more snug fit. If you're a thrasher or side sleeper, make sure you're able to comfortably rotate your body

SLEEPING BAG TERMINOLOGY

The **shell** contains and protects the insulation, blocks wind, and repels moisture.

A **hood** is key for keeping warm in cool temps. Look for easy-to-reach cinch cords and Velcro that closes on itself so it doesn't scratch.

The **tube** or flap of insulation at the neck opening—called the draft collar—traps heat and prevents drafts; it's especially important on bags rated to 20°F or lower.

Some bags have a **yoke**, rather than a draft collar, which is an insulated, U-shaped tube that hangs freely around the neck to block drafts.

Look for a **shaped footbox** with sidewalls so your feet have wiggle room and won't press into the insulation to cause cold spots.

The **insulation or fill** is the lifeblood of any bag. The loftier the fill, the warmer the bag.

Look for a **smooth-running zipper** with stiffened backing fabric that prevents snagging. Some bags have a centered zipper, which shaves weight and allows you to sit up and perform camp chores.

The **insulated draft tube** (or sometimes, pair of tubes) lies behind the zipper to block air from seeping through the coils.

Interior chambers called **baffles** in down bags keep insulation from shifting and bunching up.

Pad sleeves or straps on the bottom of the bag prevent it from sliding off your sleeping pad.

Often found on bags with shorter zippers, **foot vents** maximize ventilation.

BACKPACKER Tips: Washing your sleeping bag

Follow these tips to keep your investment lofting high.

1. Read the label or seek advice on the company's website. If those directions contradict any of our tips below, follow the manufacturer's guidelines.

2. Batten down the hatches. Close all zippers and fasteners, then turn the bag inside out, so body oils on the interior will wash off.

3. Use the right soap. For down, go with a cleaning product that won't strip essential oils from the feathers, such as Nikwax Down Wash or ReviveX Down Cleaner. For synthetics, try Granger's Extreme Cleaner Plus (which also works on down).

4. Wash it. Hand-wash in a tub, or use a front-loader; the agitator in a top-loader can tear baffles. Always opt for the gentle cycle with cold water. After one complete cycle, run an extra rinse or two to remove the soap.

5. Remove carefully. Support the bag from underneath to keep waterlogged insulation from ripping out stitches. Hang it lengthwise on a laundry line until most of the water weight is gone.

6. Dry it. Place the damp bag in a large commercial dryer. Dry on low heat, and check frequently. Remove down bags every 30 minutes to de-clump the feathers. Back home, leave your bag unstuffed for a few days. And when you do store it, be sure to use a large cotton sack or pillowcase, not the little nylon stuff sack you use while on a trip.

Backpacks: How to Choose

Article from REI

Your goal is to find a backpack that fits your:

- **Trip length** (are you going out for an overnighter or for a week or more?)
- **Personal style of backpacking** (are you more into comfort or weight savings?
Is your gear old and bulky or weight- and space-efficient?)
- **Body type** (your torso length, not your height, matters most)

This article is dedicated to helping you achieve a good match on all fronts.

Pack 101: Choose the Right Capacity

REI sorts its backpacks according to their capacity—the volume of space available inside a pack. This is expressed in liters, and it's often indicated by in a pack's name. The REI Flash 65 is, no surprise, a 65-liter pack. Why liters? Compared to cubic inches (65L = 3,967 cu. in.), they're easier to remember and to compare.

What volume is right for you? It varies by person, sometimes by a wide margin. The following chart provides a **general guide** for which pack sizes typically work well for backpackers during summertime hikes. Your results may vary, naturally. Think about the types of trips you most often pursue to gauge where you fit on this grid:

Type of trip*	Pack capacity (liters)	Empty pack weight (lbs.)
Day or overnight (1-2 nights)	20-50	1.5 to 4.5
Weekend (2-3 nights)	50-60	2.5 to 5
Multiday (2-5 nights)	60-80	2.5 to 5+
Extended (5+ nights)	80+	4 to 6+

* Spring through fall; winter trips usually require a larger pack.

Some questions to ask:

Q: What liter capacity might be right for me?



A: 60 to 80L (multiday) packs, the most popular packs sold, are an excellent choice for summer-weather backpacking trips lasting 2 or more days.

60 to 80L packs are also used for:

- Backcountry skiing: for day trips, overnights and sometimes 2-night trips.
- Climbing: for summit attempts that require an overnight stay during approaches. Efficient packers using newer, less-bulky gear can really keep things light on 1- or 2-night trips by using a pack in the **20 to 50L range** or on 2- to 3-night trips in the **50 to 60L range**. Just be aware that packing light requires self-discipline and careful planning. If you can pull it off, though, the light-on-your-feet rewards are fantastic.



Extended trips of 5 days or more usually call for packs of **80L or larger**. Savvy ultralight specialists, however, often go long distances with packs smaller than this. Just be aware that until you have mastered ultralight packing techniques, a pack can fill up pretty fast, particularly when weather is unpredictable.

Packs 80L and larger are also usually the preferred choice for:

- Winter treks lasting more than 1 night.
 - Adults taking young children backpacking. Mom and Dad wind up carrying a lot of kids' gear to make the experience enjoyable for their young ones.
- Shop REI's selection of [backpacks](#).

For tips on pack loading, see the REI Expert Advice article on [How to Load a Backpack](#).

Q: What time of year do I plan to backpack?

A: Summer? Stick with the guidelines outlined in the above chart.

If you explore in the chillier portions of spring and fall, regularly spend extended time at high elevations (above 8,000 feet/2,434 meters) or camp in winter, a larger-capacity backpack is the best choice. Larger packs can more comfortably accommodate extra clothing, a warmer sleeping bag and a 4-season tent (which typically includes extra poles).

Liters to Cubic Inches

Cubic Inches to Liters

Liters	Cubic In.	Cubic In.	Liters
10	610	100	1.6
40	2,441	1,000	16.4
50	3,051	2,000	32.8
55	3,356	2,500	41
60	3,661	3,000	49.2
65	3,967	3,500	57.6
70	4,272	4,000	65.5
75	4,577	4,500	73.7
80	4,882	5,000	81.9
85	5,187	5,500	90.1
90	5,492	6,000	98.3

A note on packs and liters: Liter counts apply to a pack's medium size, the average of its size range. The packbag of the REI Flash 65, for example, varies by approximately 3 liters from size to size. The model that fits small torsos offers roughly 62 liters of capacity, the medium 65 and the large 68. This is typical of all pack brands.

Pack 102: Choose a Pack That Fits Your Torso

Pack capacity is a key consideration, yet **nothing is more important than choosing a pack according to your torso length**. No matter how little or how much gear you're carrying, you want your pack to fit your frame comfortably.

The right fit is one that offers:

- A size appropriate for your torso length (not your overall height).
- A comfortably snug grip on your hips.

Know your torso length before you begin shopping. How? Find a flexible tape measure, enlist the assistance of a friend and follow the directions provided in the REI Expert Advice article on [Finding Your Torso and Hip Size](#). Your torso length is the distance between your C7 vertebra (the most noticeable protrusion on your

upper spine) and the rear "shelf" of your hips.

Once you know your torso length, check the specs of a pack that interests you. See if it available in multiple sizes (small, medium, large) or if it offers a single size with an adjustable suspension that can be modified to fit your torso. Here is how manufacturers typically size their packs:

Pack Size	Torso Length
Extra small	Up to 15½"
Small	16" to 17½"
Medium/Regular	18" to 19½"
Large/Tall	20"+

What about **waist size**? Some packs offer interchangeable hipbelts, so it's also good to know your waist measurement. (The majority of a backpack's weight, 80% or more, should be supported by your hips.) To find your size, take that flexible tape measure and wrap it around the top of your hips, the "latitude line" where you would normally place your hands on your hips.

Some packs offer interchangeable hipbelts, making it possible to swap out one size for another. Most people do not need to switch hipbelts, since backpack hipbelts usually accommodate a wide range of hip sizes, from the mid-20s to the mid-40s. People with narrow waists, though, sometimes find they cannot make a standard hipbelt tight enough and need a smaller size.

REI carries replacement hipbelt parts for packs from various brands, so REI pack-fitters can often customize the fit to accommodate a backpacker's waist and torso measurements.

Many Osprey packs feature an [IsoForm Custom Moldable Hipbelt](#). REI stores are equipped with small ovens that allow you to customize the shape of the hipbelt in a few minutes.

Fit Customization Tips

The sections above are the primary considerations of pack selection. The following information is less important, but still worthwhile to consider.

Here are some ideas to personalize your pack fit:

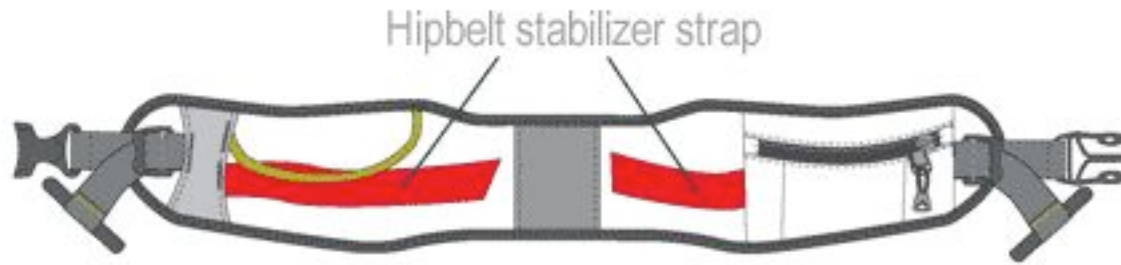
Adjustable suspensions: On some packs, the shoulder harness can be repositioned (often using a "ladder" system of adjustment points) to provide a better fit. This is a nice feature for backpackers who have "in-between" torso lengths—almost medium, not quite large, for instance. The drawback: An adjustable harness adds a little weight to a pack.

Adjustment points: The weight of a backpack, as noted earlier, should rest primarily on your hips. Your back, shoulders and upper pectoral region will share in

the task secondarily. To optimize comfort and stability, play around with your pack's adjustment straps:



- **Load-lifter straps:** They're stitched into the top of the shoulder straps, and they connect to the top of the pack frame. They don't necessarily "lift" the load, but the name has stuck. Ideally, they will form a 45° angle between your shoulder straps and the pack. Kept snug (but not too tight), they prevent the upper portion of a pack from pulling away from your body, which would cause the pack to sag on your lumbar region. Left too loose, they allow the pack to tip backward, compromising balance. Note: If load-lifter straps are angled higher than 60° or flatter than 30°, the pack is likely not an ideal fit for your torso.
- **Stabilizer straps:** Found on the side of the hipbelt, they connect the belt to the lower region of the packbag. Keeping them snug improves balance.



- **Sternum strap:** This mid-chest strap allows you to connect your shoulder straps, which can boost your stability. It can be useful to do so when traveling on uneven cross-country terrain where an awkward move could cause your pack to shift abruptly and throw you off-balance.

Load Support

The human body's best load-carrying platform? Our hips, part of the pelvic girdle (one of the body's biggest bone structures) which is supported by the body's largest muscle group—the quadriceps and hamstrings of the upper legs.

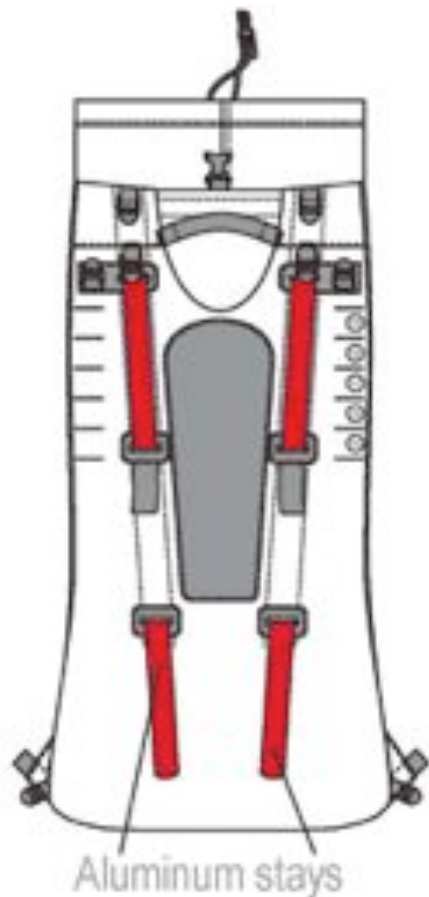
External-frame backpacks ruled the market through the 1970s, but by the 1990s internal-frame dominated. Externals excelled at toting heavy loads on constructed trails; body-hugging internals, originally embraced by backcountry skiers, won over backpackers for their ability to keep a hiker stable on uneven, off-trail terrain.



A new wrinkle has surfaced in recent years, a hybrid approach known at REI as perimeter-frame packs. By routing a small-diameter tube of aluminum around the periphery of the packbag, the design achieves the load-carrying excellence of an external design. It rides close to the body like an internal, only without the added weight of internal support stays and a back-protecting polyethylene framesheet. It has proven to be a popular technology used in several REI backpacks as well as packs from other brands.

Is one approach considered superior? It often comes down to a matter of personal taste. Since roughly 2010, internals and perimeter-frame packs are both hot sellers at REI.

Here are some load-support terms or technologies in commonly found in today's packs:



Aluminum stays: Flat support rods used in internal-frame packs, typically 1-inch wide, that more or less parallel the spine, forming something close to a V-shape at the hipbelt.

Crossing (X-shape) stays: Lends a touch of flexibility to a pack's back panel.

Framesheets: A thin, stiff layer of plasticized, semi-rigid material that supports the packbag while also preventing the contents from poking a hiker in the back. Some framesheets are also reinforced with aluminum stays to provide more substantial support. Many materials are used to create framesheets, though none has proven overtly superior. Materials include:

- High-density polyethylene (HDPE)
- ABS plastic
- EVA or molded foam
- Thermomolded polypropylene
- Polyamide

Spring steel: Used in smaller-capacity packs (less than 50 liters), spring steel features excellent shape retention—it quickly springs back into shape. It is especially useful in packs that offer a tensioned-mesh back panel for increased air circulation. (See more in the [ventilation](#) section below.) Its weakness: Spring steel bends fairly quickly when exposed to heavy weight.

So while load-support techniques vary, all seek to efficiently focus pack weight on the hips while keeping weight low.

Accessing Your Gear

How easy is it to locate and dig out an item you need? It depends on a pack's configuration.

Main compartment: Top-loading openings are pretty standard. Items not needed until the end of the day, such as a sleeping bag, go deep inside and on the bottom of single-hole backpacks. Panel-loading packs still exist, but mostly in smaller-volume packs.

Pockets: They were scarcely seen on many internal models for years (less obstruction for swinging arms), but they've made a comeback in recent years, largely because people like them and find them handy, even if they add fractional weight to a pack. Typical offerings:

- **Elasticized side pockets:** They lie flat when empty, but stretch out to hold a water bottle, tent poles or other loose objects.
- **Hipbelt pockets:** They accommodate tiny items—snacks, packets of energy gel, etc.
- **Shovel pockets:** These are basically flaps stitched onto the front of a packbag with a buckle closure at the top. Originally intended to hold a snow shovel, they now pop up on many 3-season packs, serving as stash spots for a map, jacket or other loose, lightweight items.
- **Front pocket(s):** Sometimes added to the exterior of a shovel pocket, these can hold smaller, less-bulky items.

Note: What is the "front" of a backpack? The exterior; the side opposite the back panel and harness system. Since the whole pack rides on your back, and the exterior side is farthest from you when you're on the trail, it may seem a little odd to refer to that area as a backpack's "front." But just FYI, that's what pack designers call it.

Side zippers, front zippers or front panels: These are extras (not found on every pack) that make it possible to probe a pack's interior without excavating the entire pack from the top. The only negatives: Such extras can add an ounce or two to a pack, and it can be argued that they add a potential weakness/breaking point to the pack cavity's design.



Sleeping bag compartment: This is a zippered stash spot near the bottom of a packbag. These almost disappeared entirely from packs for a few years, purged in an effort to save weight. Enough backpackers howled in dismay that they have returned on many models. They're useful primarily to people who shun a stuff sack for their bag.

Top lid: Many packs offer a zippered top lid where most backpackers store quick-access items: sunscreen, insect repellent, camera, snacks, map. Some lids detach from the main pack and convert into a hipbelt pack for day trips.

Attachment points: If you frequently travel with an ice axe or trekking poles, look for tool loops that allow you to attach them to the exterior of the pack. Rare is the pack that does not offer at least a pair of tool loops.

Other Pack Considerations

Hydration: Nearly all packs offer an internal sleeve into which you can slip a [hydration reservoir](#) (almost always sold separately) plus 1 or 2 "hose portals" through which you can slip the sip tube.

Ventilation: This is a drawback of internal-frame design. Much of the pack rides on your back, cutting air flow and accelerating sweaty-back syndrome. Designers have addressed this in a variety of ways—ventilation "chimneys" built into back panels, for example. A few packs have engineered a trampoline-like design sometimes called "tension-mesh suspension." Your back rests against a mesh-only back panel, and the mesh provides improved breathability. The frame-supported packbag rides along a few inches away from your back. This design is found on selected packs from [Osprey](#), [Deuter](#) and [Gregory](#) and [REI](#).

Materials and durability: Ultralight packs use ultralight materials, a factor that lightens your load but puts the pack's durability at risk. Materials (mostly nylon) used in REI packs range from lightweight 140 denier (140D) to super-rugged 840D.

Padding: The race to lower pack weight has sacrificed some padding in hipbelts and lumbar pads. If you keep your pack weight low, this is usually not an issue. But overloading a lightweight pack with a fairly minimalistic hipbelt and lumbar pad can sometimes cause sore spots on your hips and lower back. If this is the case for you, consider using a cushier hipbelt.

Rain cover: Pack fabric interiors are usually treated with a waterproof coating. Yet packs have seams and zippers where water can seep through, and the fabric's exterior absorbs some water weight during a downpour. The solution is a [packcover](#), which could be a plastic garbage bag (cheap but clumsy) to a more customized packcover. If you expect rain on your trip, this is good item to carry. An alternative: bundling gear internally in [waterproof "dry" stuff sacks](#). Dry sacks can be a better option in windy conditions; strong gusts have the potential to abruptly peel a cover right off a pack.