
# The 14 Essentials !

**Ten Essentials Plus Four**

[ TLB HOME ]

---

**B**ackpacking ten essentials: the first ten items in this list are the selections of essential backpacking gear which *The Mountaineers* refer to as The Ten Essentials and promote as critical and essential items which belong in your pack as insurance against the unexpected. Although you may not use all the backpacking ten essentials every day, they can be life savers in an emergency.

Also, if you shop with prudence, these essential gear items can be lightweight, as well.

As a supplement to the ten essentials, I have added four additional backpacking essential gear items which are pretty important to our health and welfare in the wilds, as well as suggest some small, lightweight, purchase options for many of the "essentials".

---

**The most important essential** , however, is not on the list--**"Common Sense"**. Having the right gear is one thing, knowing how and when to use it is quite another. Most often, it's not a person's equipment that saves their bacon. It's their experience, know-how, and good judgment.

Conversely, it is generally inexperience and lack of good judgment that gets people into trouble. Not only must we have the proper equipment -- including the ten essentials plus four -- and know how to use them, but we must also cultivate knowledge and wisdom related to the backcountry activities that we engage in--thru self-study, courses, and leveraging off the experiences of others.

[ JIM's 10 Essentials ]

~ ~ ~ ~ ~
12. Whistle
~ ~ ~ ~ ~
13. Insect Repellents or Clothing
~ ~ ~ ~ ~
14. Sunburn Preventatives
~ ~ ~ ~ ~

---

**1. Map:**

Always carry a detailed map of the area you will be visiting. If alpine scrambling or otherwise navigating cross-country consider the 7.5 minute USGS maps--they reveal considerable detail. For traveling on trails, the 15 minute series Green Trails is a good choice, among others. The point is to carry a map appropriate for the area you will be in and the activity you will be undertaking--and know how to use it !

---

**2. Compass:**

Carry a compass, at all times, in the backcountry--and know how to use it ! Some features to look for:

- 0 to 360 degrees, preferably, in 2 degree increments;
- liquid filled, which protects the magnetic needle and its jeweled bearing and minimizes fluctuation;
- a base plate--3" to 4", in length-- which can be used as a straight-edge for taking map bearings and determining distances on maps;
- an adjustable declination to account for the difference between Magnetic North and True North. The compass responds to Magnetic North, whereas, maps are based upon True North. Therefore, the compass needs to be adjusted to compensate. An adjustable declination feature lets you turn a small screw to "permanently" adjust declination to match the geographic area you will be in, so that you don't need to calculate your bearing each time.
- a fold-out mirror for sightings. The mirror allows for more accurate readings because you can position the

mirror such that the mirror and the distant objective are both visible at the same time.
- a clinometer is useful for measuring vertical angles and, thus, measures slope steepness. This feature is helpful in determining avalanche potentials, and for determining position on a map.

The following compasses are lightweight and would be the minimum you would want to carry. They probably would suffice as an emergency gear item while backpacking entirely on trails.

- Suunto A10; weighs 1 oz, 0 to 360 degrees in 2 degree increments; liquid-filled with straight-edge.
- Silva Polaris; (same weight and features as Suunto A10).

For serious backcountry travel where map and compass will be used for navigation, the following compasses are recommended:

- Suunto MC-2G Navigator; weighs 2.6 oz, has all the features itemized above, plus luminous bezel and markings.
- Silva Ranger; weighs 3 oz, (same features as Suunto MC-2G, only without the luminous bezel).

---

**3. Flashlight / Headlamp:**

Flashlights and/or Headlamps are important even on day trips. You never know when you might need to spend the night or make that last mile or so after sunset. Here's some features to look for:

- lights which are water resistant--they function reliably in all weather. Look for rubberized bulb housing and battery compartments, or at least adequate rubber gaskets.
- lights which come with extra bulbs stored inside their housing.
- lights which have rotating head or body as the on/off mechanism. Avoid lights with on/off switches which can accidentally be turned-on as it is jostled about in your pack.
- lights which come with or will accept bright beam bulbs such as xenon, krypton, or halogen. Also, always carry several spare bulbs--they are light.

It's a good idea to carry a small lightweight hand-held light in addition to a headlamp. In the hand held light use a regular bulb which requires less battery juice than the bright-beam bulbs. Use this light for simple around the camp chores, to conserve batteries. In the headlamp, use a halogen (or other bright-beam bulb) and use this light when you are path finding or otherwise require a bright beam.

Suggestions for a small, lightweight, high-quality hand held light:

- Photon Micro Light; (the one I use), weighs 7 grams, (click the link to read the review and/or purchase one).
- Mini-Maglite AA; (2 AA batteries) weighs 4 oz., twist top on/off, comes with extra bulb.
- Princeton Tec LED; 4 AAA batteries, weighs 2.5 oz, 3 LED bulbs.

Suggestions for a small, lightweight, high-quality headlamp:

- Petzl Zipka; (3 AAA batteries) weighs 2.2 oz, built-in retractable head strap. Strong beam from 3 LED bulbs.
- Black Diamond ION; (1 6 volt battery - included) weighs 1.1 oz, uses 2 LED bulbs.

---

**4. Extra Food:**

Whenever you go out, even for a day trip, bring extra food in case you are delayed by emergencies, foul weather, or just get lost. The mountaineers suggest a one-day supply. At the very least, bring one good meal more than what you need. The food should require little or no cooking. If your extra food will require cooking, make sure you also carry extra fuel for your stove.

---

**5. Extra Clothing:**

In addition to the basic layers you would normally take on an outing, bring extra clothing which would get you through an unplanned bivouac through the worst conditions you might come up against. Extra clothing means a little extra beyond what you would normally carry, just in case of emergencies.

Suggestions for the basic kinds of clothing that you should be carrying on "ALL" hikes can be found HERE!! For Day Hikes only, click HERE!!

In addition to the extra clothes, carry an emergency shelter such as a waterproofed tube tent or mylar Space Bag (or blanket). The Space Bag only weighs about 2.5 ounces but will completely encase you and keep you warm and dry. Another option is a VBL (vapor barrier liner ) like the Western Mountaineering "Hot-Sac" VBL. The VBL can be used on a regular basis to add warmth to your sleeping bag as well as serve as an emergency shelter. It's a little heavier than the Space bag -- 6.5 ounces.

[ Bill Fusfield's Comments on Extra Clothes ]

---

**6. Sunglasses:**

Your eyes can experience damage from the intensity of mountain skies, ultraviolet rays, and light reflecting off of snow. As elevation increases so does the intensity of ultraviolet rays. Adequate eye protection is a must!

Bolle' makes a lightweight pair of glasses with a virtually indestructible polycarbonate lens. They are optically correct and have emerald green lens for true color. They are rated 100 % UV protection. Cost is about US $40.00.

For traveling on snow, get a pair of glacier glasses with side shields which reduce reflective light reaching the eyes. Good, quality glacier glasses typically cost in the $50 to $150 range. Nikon makes some nice ones with polycarbonate lens. They are very lightweight, cost is about $110.

There are many other brands of sunglasses and glacier glasses which are less expensive and provide adequate protection. Shop around, but be careful. Try to stay with reputable brand names. Your eyes will know damage, long before you feel discomfort.

---

**From:** lsk3@earthlink.net
**Date:** 5/11/98
**Subject:** Sunglasses
Just a bit of trivia for you. When Reinhold Messner climbed Everest solo, he abandoned his pack for the last leg of the descent. He did, however, make sure he took along TWO pairs of sunglasses. Makes sense - you won't get home if you're blind.

---

**7. First-Aid Kit:**

Carry first-aid supplies for minor injuries. In particular, carry plenty of adhesive band-aids and sterilized bandages, because they can't be easily improvised in the woods. What to carry ? A good book to reference is "Mountaineering First Aid" 3rd edition, by Lentz, Macdonald, and Carline, published by The Mountaineers.

This booklet was used as a text when I took the Mountaineers' MOFA (Mountaineering Oriented First Aid) course. I use it now to refresh my memory. It is easy reading, small ( 5 1/4 x 8 1/2 inches ), brief ( 95 pages ) and inexpensive ( $8.95 ). It identifies what items to carry, as well as what to do in emergency situations.

Once you are familiar with the supplies you need, you can purchase a kit or make your own. If you purchase one, you'll most likely need to add to it ( items like CPR mask, rubber gloves, etc. ) since most commercially prepared kits are inadequate.

Also, If you spend any time in the backcountry, it would be a good idea to enroll in a mountaineering first aid course.

(NOTE: Within the "Weight-Saving Tips" page at this site, are many improvisations which can be used in emergency situations--"in lieu of packing the kitchen sink").

---

**8. Pocket Knife & Tools:**

Your basic backpacking tool kit. A good example of a single piece of gear which has multiple uses. For example, a Wenger "Master" Swiss Army Knife has a locking blade; "slip-joint" pliers/wire crimper/wire cutters; springless self-sharpening scissors; wood saw; nail file/cleaner; corkscrew; awl/reamer; can opener; cap lifter; tweezers; and toothpick--all at a weight of about 6 ounces. Swiss-Army knives are available with more and less features.

At a minimum, knives are useful for first aid, food preparation, cutting moleskin strips, cutting rope and making repairs. However, scrutinize your needs before you go out and buy a honker like the Victorinox Swiss Champ which has many tools you probably don't need and weighs 1/2 pound ! If you don't actually use a feature, then you probably don't need to be carrying it around.

A very good source for backpacking knives & tools is TLB's own

**BACKPACKING KNIVES & TOOLS STORE - HERE** !

---

**9. Waterproof Matches:**

Carry matches which have been waterproofed or wind and waterproofed, or else carry extra strike-anywhere matches--along with something to strike them on-- in a waterproof container. Keep these matches separate from your regular match or butane lighter supply. Keep them available for emergency situations.

There are many commercially prepared waterproof/windproof matches available on the market, e.g., "Hurricane" and "Cyclone" brands of wind & waterproof matches and Coghlan's waterproof safety matches.

---

**10. Firestarter:**

Fire starters are useful for quickly starting a fire, especially in emergency situations. They are also useful for igniting wet wood. There are several commercial fire starters available: magnesium blocks w/striking flint; chemically-treated fire sticks, etc.

In addition, numerous home-made fire starters work just fine: plumber's candles (wax); compressed balls of dryer lint mixed with or covered with melted paraffin; small strips of waxed cardboard (from old produce boxes); small flammable containers--individual egg-carton cups filled with mixtures of wood shavings, wax, & lint; etc.

---

**11. Water / Filter / Bottles:**

Carry plenty of fresh water. If you are familiar with the area in which you are traveling, and can be sure that water sources are available, carry enough water to get you there.

If you aren't bringing your water from home or a public source, treat the water you draw from the backcountry, regardless of the source. These days, everything is suspect.

Use water filter, purifier, chemical tablets, or boiling to treat the water before consuming.
---
For transporting inside your pack, use lightweight water bottles, such as Nalgene 16 oz and 32 oz lexan polycarbonate or high-density polyethylene wide-mouth bottles. Some folks use other containers such as old plastic pop bottles. That's okay too. Be careful they don't crack and/or leak, though.

---

**12. Whistle:**

For emergencies: when you're lost, someone else is lost, or you're hurt and need help, etc.

Caution: Metal whistles, with a pea, can be a problem in the mountains. Your "pea" can freeze up, and what happens when you put your lips on frozen metal ?

A better choice would be a pealess plastic whistle like the Fox 40. It is ultra-light and very shrill. Cost about $6.00. REI sells em.

---

**13. Insect clothing or repellents:**

I don't know about you, but summer really "bugs" me. Three ways to deal with the biting flies, mosquitoes, knats, etc. are to (1) let them eat you (2) use repellents or (3) wear clothing. Since the first option doesn't cut it, there are numerous commercial repellents on the market. Most of them are DEET based. REI Jungle Juice works okay but the stuff gets everything oily. There are many good creams but they need to be reapplied more frequently. There are extended duration DEET products which do not soak into the skin as fast and provide up to 12 hours of protection--such as 3M Ultrathon (now only available as "Hourguard 12" thru Amway).

I've found, recently, that the bugs seem to be getting immune to the juice, so I've been wearing an ultra-lightweight bug-netting jacket and pants. This has been successful, except when I bend over and expose my lower back where the jacket rides up. If you go this way, make sure the garments are very baggy. Many bugs have long stingers that easily penetrate tight fitting netting.

---

**14. Sunburn preventatives:**

Remember, the higher the elevation, the greater the intensity of the sun. Although each of us has a different capacity -- a.k.a. different pigmentation -- for withstanding the sun's onslaught, the message is the same--the penalty for underestimating your need for protection is severe.

In sunny conditions, wear light-colored clothing and cover exposed skin, at least, with SPF rated sunscreen appropriate for you, at least 15. Wear coverings over the neck and ears. OR (Outdoor Research) and other manufacturers make baseball-style caps with skirts which cover the neck and ears. Carry an SPF-rated lip-balm, as well, and reapply frequently.

---


Return to Index

---



**( printable copy - in MS Word format )**

# Backpack Buying Guide

A backpack is basically your home for the length of your entire backpacking trip. It holds your shelter, clothes, food, and all the other necessities and comforts. You may be using your pack for backpacking a thru-hike, an overnighter, or just anything off the beaten road. But in any case, choosing the right backpack for your body, planned uses, and gear system is essential to an enjoyable experience in the outdoors.

## Choosing the Capacity

When selecting a backpack to purchase, selecting one with an appropriate capacity, or volume, for you personally is essential. Use the questions below to help find what capacity would be right for you.

**What duration of trips do you plan to use it on?**
Think how long of trips you plan to use the backpack for in order to determine what capacity you need. Keep in mind that shorter trips will require less gear while more gear, such as clothes and food, are needed for longer trips. If you plan to use it generally for trips lasting 2-4 days in mild 3-season conditions, you will likely need a backpack ranging from 40-75 liters. For trips lasting 5 days or more, you will want to purchase a pack with at least 80 liters. The following table gives general guidelines to what pack size would be needed for a certain trip length. However, the capacity you need depends on what type of gear you own and its size may change (see below).

| Pack type | Trip duration | Pack capacity (liters) | Pack capacity (cubic inches) |
|---|---|---|---|
| Multiday | 2- 4 days in 3 seasons | 40 - 75 | 2,400 - 4,600 |
| Extended trip (men) | 5+ days or in winter | 80 and up | 4,800 and up |
| Extended trip (womens) | 5+ days or in winter | 70 and up | 4,300 and up |

***Measuring Capacity:*** *Backpacks often contain a number in their name, such as the Osprey Mutant 38, which describes the capacity, or volume, inside the backpack in liters. They have become the standard unit of measuring, putting cubic inches in second place. This number embedded in the name is the capacity of the medium size, with each size differing by 3 liters.*

**What time of year to you plan to use the backpack?**
For mild to moderate Spring, Summer, and Fall conditions, the guidelines mentioned above should be appropriate. However, if you are planning to backpack in extreme heat or cold, you may want to plan to have a higher capacity backpack to accommodate extra food and liquids, more clothing, a warmer sleeping bag, and a stronger tent.

**What type of other backpacking gear will you pack it with?**
If you already have a your backpacking equipment, you want to be sure it will all fit in the desired backpack. Many outdoor stores will let you bring your gear in, load your gear in your backpack, and walk around. This is a great option to know what capacity you really need. If you are updating or starting your system from scratch, consider purchasing lightweight or even ultralight gear.

***Mindset:*** *The **"ultralight"** mindset is made up of advanced gear and the willingness to give up conveniences for a low pack weight. Going "**lightweight"** is balancing weight-savings with comfort features. The **"deluxe"** mindset is giving up a low pack weight for comfort and convenience. It doesn't matter which mindset you have, but finding the right size and capacity of backpack is. You must find the a balance between weight reduction and comfort to fit you.*

## Frame Types

These days, almost all backpacks feature an internal frame design, however external frames are also available. The close-fitting and flexible design of an internal frame backpack enhances your balance and keeps your load stable on any terrain. This is ideal for many activities, such as mountaineering, skiing, scrambling and hiking in rough terrain. Internal frame backpacks also allow for more movement, letting your arms swing freely because of the narrow profiles. On the other hand, external frame packs help backpacks carry heavy loads. They also are divided into compartments, making it easier to organize and find items inside the pack compared to the single, main compartment of internal frame packs. External frame backpacks still exist, although they are hard to find as retailers are attempting to move away from them.

## Fitting the Backpack

The key to comfort is a good-fitting pack. To get started, have a friend help you measure your torso length. Torso length is measured from your shoulders to the top of your hip bones. Visit the Sizing and Fitting a Backpack article for more information on correctly sizing a backpack.

Your waist size also matters, though most hipbelts can be adjusted to fit a wide range of waist sizes. Just make sure the hipbelt is comfortable when you try it on.

Many packs allow you to fine-tune their torso fit via easily adjustable suspension systems. The alternative is a fixed-suspension pack. This type is non-adjustable, but offers the advantages of being less complex and thus lighter than a comparable adjustable model.

To ensure that your pack fits properly, visit our Sizing and Fitting a Backpack article for in-depth information.

## Other Key Features

**Support (stays or framesheet):** Typically, one or two aluminum stays are used to transfer the weight of the load to your hipbelt. Stays are typically a rod or bar, though some now feature a tubular design to reduce weight. Other packs use a stiff plastic HDPE (high-density polyethylene) framesheet for load support. This thin sheet helps prevent objects in your pack from poking you in the back. A number of packs now offer a stay/framesheet combo.

**Suspension system:** This refers to the load-supporting system of shoulder straps, load lifter straps, a sternum strap and stabilizer straps. Packs offer either Adjustable or Fixed Suspension. Adjustable Suspension allows you to fine-tune the fit of your pack to match your torso size. Many feature a ladder-type system of rip-and-stick closure that let you move the shoulder harness up or down in small increments. Visit the Sizing and Fitting a Backpack article for more information about adjusting the suspension system on your backpack.

**Ventilation:** Internal-frame backpacks hold the pack close to your body, restricting air flow and allowing sweat build-up on your back. On the other hand, external-frames allow more air flow. Many backpacks now feature ventilation systems to help fix this problem, including tension-mesh suspension system to create a permanent air space between your back and the pack. Other packs feature a channel design to provide a similar cooling effect and improved breathability.

**Packbag:** The materials used in packbags seek to find a balance between durability and weight. Nylon packcloth and Cordura, a burly nylon fabric with a brushed finish, both emphasize abrasion- and water-resistance. Cordura is tougher and a bit heavier. For ultralight travelers, newer fabrics such as silicone-coated nylon are used to trim precious ounces at the cost of some durability.

**Top lid:** This top pocket offers extended capacity, as do expansion collars. Some lids detach to double as waistpacks for day trips from base camp.

**Hydration compatibility:** Most packs have a compartment designed to hold a hydration reservoir, plus a port (opening) on each side to route the sip tube. Reservoirs are typically sold separately, except on hydration-specific packs. Other packs have elasticized mesh "holsters" on their sides to hold water bottles.

**Hipbelt:** The hipbelt should straddle your "iliac crest" - the two prominent bones on the front of your hips. This is the area where your pelvic girdle begins to flare out. When evaluating hipbelts, consider their comfort and adjustability. Some packs offer interchangeable belts, permitting a more customized fit, and even belts where the angle of the fit can be adjusted. An increasing number of hipbelts have pockets for easy access to your energy food, digital camera, GPS or similar items.

**Other load-bearing straps:** Most packs help keep the load close to your body by using load-lifter straps. These are located just below the tops of your shoulders (near your collarbone) and should angle back toward the pack body at about a 45 degree angle. Also common is a sternum strap which secures across your chest to help support the load and allow your arms to swing freely.

**Attachment points:** These allow you to attach gear to the outside of your pack if you have the need. Climbers and early-season hikers should look for ice-axe loops, daisy chains (a series of small loops where you can dangle gear, such as carabineers) and crampon patches. A shovel pocket holds a snow shovel or other items tight against the back of your pack; it's a good place to stash wet things. All of these extras, of course, add some weight to a pack.

**Rain covers:** Backpack interiors are waterproof treated, yet during a rainstorm water can still get through seems and zippers. You may simply use a trash bag, but many packs have a rain cover to shelter your pack from bad weather and help prevent lashed-on gear from snagging on brush.

# Sizing and Fitting a Backpack

**Correctly fitting your pack could make or break your trip (and back)**

Backpacking trips can be long and challenging, so you want to make your experience as comfortable and least painful as possible. One of the most important aspects of having a comfortable trip is having a backpack that fits you correctly and that is put on properly.

If your backpacking backpack has an adjustable suspension, compared to a fixed suspension, then you are able to fine-tune it's fit to match your body.

## Finding Your Torso Length

Finding the right backpack size has no relation to how tall you are, but rather the length of your torso. Torso length is measured from your shoulders to the top of your hip bones. To find your exact measurement, you must have a friend to measure you.

To locate your C7, or 7th cervical vertebra, tilt your head forward. Have your friend feel along the base of your neck for a bony bump, the one that protrudes farthest from your spine. It is located where the slope of your shoulder meets your neck.

Beginning at that spot, have your friend use a flexible tap measure and measure downward along your spine.

Now you must find your iliac crest. Run your fingers down the sides of your ribcage until you reach the first hard spot, this is your hip bone. Please your hands on top with thumbs pointing behind you. This iliac crest serves as the "shelf" of your pelvic girdle.

Draw an imaginary line between your thumbs to the point where they met in the middle. Have your friend measure to the point where it intersects with your spine, while still holding the top of the tape on your C7. Once you have finished measuring the distance from your C7 to your iliac crest, you now have your torso length.

Compare this measurement to the information in the next section to find what backpack frame size is right for you.

## Choosing the Correct Frame Size

As soon as you know the length of your torso, finding the right backpack frame size is no problem. Although the sizes may differ a bit, use the following frame size guide unless otherwise stated by the manufacturer.

**Extra Small:** Up to 15-1/2 inches tall (up to 39 cm)
**Small:** 16 - 17 1/2 inches tall (40 - 45 cm)
**Medium/Regular:** 18 - 19 1/2 inches tall (46 - 50 cm)
**Large/Tall:** 20 inches and up (51 cm and up)

Note however, that each frame size can be adjusted to fit a slightly larger or smaller torso size.

**Women-specific backpacks** are also made which have narrower shoulder yokes, conically shaped hipbelts and shorter torso lengths specifically designed to fit women. Men with narrow frames sometimes find these packs are also a good fit for them.

## Determining Hip Size

Some backpacks come with the option of interchangeable hip belts. In this case, it is a good idea to know your hip size. In any case, knowing your size is a good idea but is not crucial.

Wrap your flexible tape measure around the top of your hips, known as your "latitude line" where you can feel your iliac crest. A properly fit hipbelt should straddle your iliac crest, sitting about an inch above and below your "latitude line." This measurement is your hip size.

**Small:** 22 - 27 inch hip-line (56 - 69 cm)
**Medium:** 28 - 34 inch hip-line (70 - 87 cm)
**Large:** 35 - 39 inch hip-line (88 - 100 cm)
**Extra Large:** 40 - 45 inch hip-line (101 - 114 cm)

## Adjusting the Pack

The following steps are used when your packed right before you hit the trail. At the beginning, make sure all belts and straps are loosened. Practice this procedure prior to heading out in order to achieve the perfect fit. Remember, comfort isn't just a luxury when backpacking. If your pack doesn't fit correctly, it could result in injury.

### Step 1: Hipbelt

First, put your backpack on with your hipbelt sitting on your hips. Clip the belt buckle on and tighten the straps evenly. However, you want to keep a 1 inch margin on both sides of the belt buckle. If it is still too tight or too loose, you may want to try a different backpack or hipbelt size. The goal is to have your hips hold 80% - 90% of your backpack's weight.

### Step 2: Shoulder straps

Pull back and down on the shoulder straps to tighten them to fit close to your body and wrap around the shoulders. These shoulder straps are to simply hold the backpack against your body, **not** support it's weight.

### Step 3: Load lifters

Your backpack's load lifters are located just above your collarbones on your shoulders and attach the top of the pack to your shoulder straps. Gently pull these straps snug in order to take some weight off of your shoulders.

### Step 4: Sternum strap

The sternum strap on your backpack, located on your chest, is simply meant to prevent your shoulder straps from slipping off, allowing your arms to move freely. Adjust this to a comfortable height across your chest that pulls the shoulder straps in.

### Step 5: Stabilizer straps

If your backpack offers stabilizer straps, they are likely found on the bottom of the pack near your hipbelt. Pull the straps forward into your body evenly in order to secure and stabilize your load.

# How to Pack a Backpack

**Learn how to correctly load your backpacking backpack**

While many hikers and backpackers just throw things into their pack the day before their trip, there is a method in packing it properly to improve their overall backpacking experience.

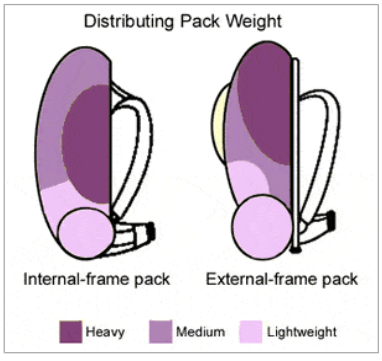
Learning to organize your gear properly before packing it will eliminate forgotten items and help you remove unnecessary luxuries. By loading the gear inside your backpack the correct way, you will gain more comfort, convenience, and stability.

## Pack Capacity

Before loading the pack with your backpacking gear, be sure that you have the proper backpack size to fit the gear you plan to bring. In short, you want to find the line between eliminated unnecessary weight and certain luxuries for comfort. Upgrading to new and lighter equipment will help keep weight and pack size down. Also, keep in mind that shorter trips will require less gear while more gear, such as clothes and food, are needed for longer trips. For more detailed information on choosing a backpacking backpack and finding the right pack capacity and size for you, visit our Backpack Buying Guide.

## Weight Distribution

By distributing weight in a specific manner, you can achieve better stability, comfort, and convenience. Instead of simply stuffing your backpacking gear inside your pack, follow these guidelines.




**Internal backpacks** are have just recently become the standard backpacking frame type. While trail hiking with an internal-frame pack, items with the most weight wants to be centered high between the shoulder blades and close to your back. By doing this, the weight is placed on the hips which should hold most of our backpacking pack's weight. When off the trail, items should be placed a bit lower on the back, lowering your center of gravity and stabilizing you better on rough terrain.

**External backpacks** are still used, although less common than internal frames. They are recommended for trail hiking only. The heaviest items should be packed on top and closes to the back to center the pack's weight over the hips and help you stay in a more upright stance.

Either frame type you choose, medium weight gear (water filter, first-aid kit, stove) should be placed in the middle and furthest from the back. Lightweight items (sleeping bag, clothing, odds and ends) should be placed lowest in the backpack. To learn more about the different frame types, see the Backpack Buying Guide.

Be careful to not overload your pack or body. A loaded backpack shouldn't exceed 25% to 30% of your ideal body weight. Although this is a general guideline, some experienced backpackers may be able to carry more weight, while novices and less-fit persons should start with less.

## Organization

Before actually stuffing gear into your backpack, you may want to lay out all of your equipment. This is a great way to make sure you have all your gear and organize it by weight. Another good idea is to cluster similar small items, such as eating utensils and pots, together in ziplock or stuff bags. You may want to even go further and color-code them as well. It is also a good idea to store food and liquid fuel in bags to prevent spills.

When loading your pack, be sure to follow the weight distribution guidelines given above. As lightweight items should be stuffed at the bottom of the backpack first, the sleeping bag usually goes in first along with other light nighttime supplies. After, pack medium weight items, followed by heavy gear.

Be sure to fill in empty space with small or compressible items. For example, you can stuff a shirt inside a pot, put a roll of duct tape around your hiking poles, or remove your sleeping bag from its sack and stuff it around other gear. If you are using a bear canister, as more and more national parks and wilderness areas are requiring, be sure to fill it completely full with food and other scented items (be sure to pack this closest to your back).

Certain items like a GPS, insect repellent, snack food, rainwear, or a headlamp may need to be accessed at any time. Because of this, these essential things should be stored inside a front pocket, top lid, or in the top of the main compartment so they can be found with minimum searching.

After your backpack is loaded and packed, tighten all compression straps to limit load-shifting while hiking.

## Attaching Gear Externally

It is best to avoid strapping many items to the outside of your backpack. However, sometimes it is necessary due to limited space or odd shaped items. Lashing gear to your pack could affect your balance and may also swing, rattle, or snag plants on the trail. To avoid stability issues, be sure to balance weight of items attached to your pack.

Trekking poles can be vertically attached on the outside of your backpack on either or both sides beneath compression straps and tucked inside the water bottle pockets on the bottom of pack if available. You may also choose to strap your tent poles to the outside as well.

Bulky items such as a tent, sleeping pad, or sleeping bag (although many packs come with a special sleeping bag compartment) could be attached on the top or bottom of the pack horizontally. Just remember, if you plan to do on-trail hiking, keep items with the most weight higher. Some backpacks have straps near the top lid or underneath. You may want to store air-filled pads or sleeping bags inside a bag to avoid possible punctures.

If you backpack as a daisy chain on the front, you may also utilize this to hang gear from. Although it is intended for mountaineering equipment, you can improvise with rope or carabineers to hang items.

# Backpacking Tent Buying Guide

Protection from weather and bugs. A comfortable place to tell stories or watch the stars. These are all good reasons to carry a tent when you head into the backcountry. So which tent is right for you? Your choices boil down to finding the right balance of weight versus comfort and convenience for your tastes.

## What's your backpacking style?

For backpacking, you want to keep tent weight low as possible while retaining an acceptable level of comfort and safety. Of course, individual views on comfort and weight can vary greatly. So backpackers divide core gear (tent, bag and pack) into four general categories. Decide which one best matches your backcountry style.

**Minimalist:** Reducing weight overrides all other considerations, including comfort, durability and convenience. Period.
**Ultralight:** You want to keep your pack weight low, just not as extreme as a minimalist. You're willing to give up some comfort in order to reduce your pack weight.
**Lightweight:** You'd like to hit that sweet spot that balances light weight, comfort and convenience. For tents, "comfort" is defined as having livable space, sufficient length and interior pockets.
**Deluxe:** You're a "maximalist" explorer who puts a priority on comfort and convenience, not ounce counting.

## Types of tents

Once you've identified your style, find a tent category that suits the type of backpacking trips you usually take.

**Three-season tents:** The most popular choice, these are made for the relatively temperate conditions of spring, summer and fall.
**--- Pros:** Protects you from wind, rain and bugs; offers ventilation and stargazing; lightweight.
**--- Cons:** Not intended for heavy snow loads.

**Four-season tents:** These are weatherproof for mountaineering and winter camping. Rounded edges and one or two additional poles help withstand heavy snow and high winds. Rounded dome designs eliminate flat roof spaces where snow can collect.
**--- Pros:** Best for snowy, harsh conditions.
**--- Cons:** Heavier; ventilation can be an issue in warm, humid climates.

**Convertible tents:** These are 4-season models which can be converted into 3-season tents. This is usually accomplished by removing pole sections and/or zipping off a roof panel.
**--- Pros:** A good choice for year-round adventurers who want only one tent.
**--- Cons:** Heavier than a comparable 3-season model, even when in 3-season mode.

**Single-wall tents:** There are two types of single-wall tents. Tents for climbers seal up tight in cold, snowy weather and use vapor pressure to force condensation out. Models for minimalist backpackers use mesh sections and waterproof/breathable fabrics for ultralight, 3-season comfort.
**--- Pros:** Lighter than traditional double-wall tents.
**--- Cons:** Can be stuffy, especially in warm or humid conditions.

**Bivy sacks:** These offer a waterproof, breathable barrier for your sleeping bag. Some are basic sacks; others offer pole-supported head space with mesh bug netting.
**--- Pros:** Saves space and weight.
**--- Cons:** They can feel confining.

**Shelters:** These are simple rain tarps or bug netting made for minimalists.
**--- Pros:** Definitely the lightest, most compact option.
**--- Cons:** Tarps protect from rain only; netting stops bugs only.

**Floorless tents:** These simple abodes offer a convenient option for snow campers who don't need a floor or anyone who wants to save weight.
**--- Pros:** Light and compact.
**--- Cons:** For specialized use in relatively benign weather conditions only.

## Tent size and livability

### Sleeping Capacity Explained

Backpacking tents are categorized by size: Solo, 2-person, 3-person and there are even a few 4-person models. These are space -efficient designs that generally assume a tight fit. Note: Many stores' design standard for a 2-person tent means that it must fit two 72 x 20 sleeping pads side by side with no overlap.

If you are claustrophobic, prefer a little elbow room or tend to toss and turn all night, consider a larger tent. (For example, a pair of restless sleepers will be more comfortable in a 3-person tent than a 2-person tent). The extra ounces may be well worth it.

### Floor Dimensions

Designed to be efficient, many backpacking tents are not long enough for folks taller than 6'0". Look at the "floor dimensions" spec and diagram (if available) to see if the length is sufficient for you. Keep in mind that tents often taper in the foot sections and walls angle in toward the ceiling. This impacts the actual amount of space inside a tent's walls.

### Interior Spaciousness

The peak height spec gives you one indication of the general livability of a tent. As a rule of thumb, the higher the peak height, the roomier the interior. Another indicator is the angle of the sidewalls. "Combi-poles," a relatively recent advancement, are poles of varying diameters that maximize interior space by creating nearly vertical sidewalls. This is accomplished when slightly thinner pole segments can be bowed out in just the right place to increase interior room without enlarging the floor. Similarly, brow poles across a tent are another way to achieve this effect.

### Mesh Improves Ventilation

Condensation from your breath can turn a poorly ventilated tent into a sauna, particularly in muggy climates. To combat this, tent designers use mesh doors, windows and roof panels to allow air to circulate. Sufficient tent-to-rainfly separation is also needed to remove damp air. Some tents include hooded rainfly vents to allow even more condensation to escape. Of course, in nice weather, you can take the rainfly off and sleep under the stars.

### Vented Rainflies

Besides protecting you from bad weather, many rainflies now incorporate a hooded vent to allow condensation to escape. Also be sure you get a "full-coverage" rainfly. This is a fly that extends low enough around your tent to block rain or wind from entering.

### Vestibules for Your Gear

A vestibule is typically an extension of the rainfly that creates a covered storage area for your muddy boots or dusty pack. Some tents have a pair of vestibules which add extra convenience. A few brands offer optional vestibules that create even more space than standard ones.

### Packed Size

This spec tells you how much room a tent takes up in your pack. Keep in mind that backpacking groups can split up the carrying of tent components.

### Tent Weight

This is a prime consideration for most backpackers. When comparing models, keep in mind these definitions used by most manufacturers:

> **Minimum weight:** This is the total weight of the tent body, rainfly and poles only: the bare essentials. You will probably pack more tent-related gear (e.g., stakes, footprint) than just this, but use this spec when comparing tent weights.
> **Packaged weight:** This is the total weight of all tent components: body, rainfly, poles, stakes, stuff sack, pole sack, instructions and any other items a manufacturer ships with a tent.

One helpful way to think of weight is per person. A 2-person tent that weighs 4 lbs. 8 oz. equals just 2 lbs. 4 oz. per person. If both of you prefer the extra room of a 3-person tent weighing 5 lbs. 2 oz. you're looking at 2 lbs. 9 oz. per person. Is this trade-off worth it? Only you can decide.

## Setup features

### Pole Sleeves vs. Pole Clips

Poles can be connected to the tent's canopy in several ways, via sleeves, clips or (more commonly) a combination of both.

> **Pole sleeves** help distribute force over a larger area and create less stress on the tent body fabric.
> **Pole clips** are easy to attach and usually allow a larger gap between the rainfly and tent body. This improves ventilation and minimizes condensation.

Pole hubs are a recent innovation that pre-connects two or more poles together for added strength, stability and faster setups. Typically used in conjunction with pole clips, hubs allow a simplified pole structure.

**Rule of thumb**: The fewer number of poles on a tent, the faster and easier it is to pitch.

### Freestanding or Not

Most tents are freestanding, meaning they (excluding the rainfly) do not require stakes to set up. The big advantage of this is that you can pick it up like a big beach ball and move it to a different location prior to staking. Non-freestanding tents may weigh a bit less, but must be staked down before setup.

### Fly/Footprint Option

Some tents are designed to allow ultralight "fastpacking" where the footprint and rainfly can be pitched together without the tent body. It's a good way to save weight, but you lose the bug protection of a tent body.

## Durability

### Pole Materials

Virtually all quality backpacking tents use aluminum poles, as they are much stronger than fiberglass. "Press-fit" poles are the most basic and economical choice, using dimples or glue to firmly connect the ferrule to the pole.

The following styles represent the leading edge of pole design. All offer excellent strength and flex for less weight than press-fit poles:

**DAC Featherlite:** Probably the most widely used pole in quality tents, it offers a consistently high strength-to-weight ratio.
**DAC Featherlite NSL:** This more recent advancement adds strength, reduces weight and uses a more eco-friendly anodizing technique during its manufacturing process.
**Yunan Air Hercules:** This uses a "floating connector" and an aluminum/scandium alloy to provide strength and flex at a light weight.

### Tent Materials

Not surprisingly, the lightest tents use lighter-weight fabrics that sacrifice some durability to save a few ounces. Other tents employ slightly heavier materials that better stand up to wind and abuse. The type of fabric used also varies by application:

**Rainfly:** Coated polyester better resists stretching when wet, so it is commonly used to ensure the dimensional stability (tautness) of your rainfly.
**Body:** 40-denier nylon taffeta is typically used on lighter-weight tents, with beefier 70-denier nylon taffeta found on other tents.
**Floor:** Abrasion resistance is key here, so coated nylons ranging from weight-saving 30-denier to more rugged 75-denier are commonly used.

**Note:** UV rays can eventually degrade tent fabrics, so it's best to not leave a tent out in the sun for any longer than is necessary. Testing has not uncovered any significant difference in UV resistance between nylon and polyester fabrics.

## Key accessories

### Footprints: An Easy Way to Extend Tent Life

A footprint is a custom-fitted ground cloth that goes under your tent floor. Tent floors can be tough, but rocks, twigs, grit and dirt eventually exact a toll. A footprint costs less to replace or repair than your tent itself.

Also, because footprints are sized to fit your tent shape exactly, they won't catch water like a generic ground cloth that sticks out beyond the floor edges. Water caught that way flows underneath your tent and can seep through even tiny holes in the floor fabric.

### Seam Sealer

Seams create tiny holes that can let water inside a tent. Most tents today come with factory-sealed seams and require no additional sealing. Some tents, however, are made with Silnylon® or eVent® fabrics that may require seam sealing by you. To be sure, refer to the tent instructions.

### Gear Loft

Most tents come with a few attached pockets to let you keep small items off of the tent floor. A gear loft or attic is an optional mesh shelf that can tuck a much greater volume of gear out of the way.

## Summary

When choosing your backcountry home, you need to weigh the relative importance of size, weight, features and durability. Since these answers vary by the individual, it's a good idea to "test drive" a tent first.

# Backpacking Sleeping Bags

## Choosing a sleeping bag

Sleeping bags keep you warm by trapping and holding a layer of "dead" (non-circulating) air next to your body. This air, which is warmed by your body heat, forms a barrier between you and colder air or cold surfaces.

When evaluating bags, consider these key factors:

- Comfort rating
- Insulation (down or synthetic fill)
- Weight
- Size when compacted
- Shape

## Comfort rating

A sleeping bag's temperature or "comfort" rating identifies the most extreme temperature the bag is designed to accommodate. When you hear a bag described as a "+20 bag," it suggests most users should remain comfortable if the air temperature drops no lower than 20 degrees Fahrenheit.

Are such ratings infallible? No. Humans all have different metabolic rates, and no industry standards exist that uniformly determine sleeping bag comfort ratings. Instead, each manufacturer assigns a rating to its bags based on its own research. Therefore, use these numbers as a guide, not a guarantee. If you have trouble deciding between two bags, it's not a bad idea to select one that offers a little more warmth than you think you might need.

Many factors affect your ability to keep warm inside a sleeping bag:

- The insulating pad beneath your bag (when sleeping on frosty ground at high elevation, you need a full-length pad to keep you separated from the cold; when sleeping on snow or frozen ground, two pads are recommended)
- The presence/absence of a tent(a tent or bivy shelter traps an extra layer of dead air, warming it by up to 10 degrees)
- Your metabolism; you might be a "cold sleeper" (and thus one who prefers extra insulation when sleeping) or a "warm sleeper" (someone who kicks the covers off at home)
- Your gender(women frequently prefer bags with lower temperature ratings since they tend to "sleep colder" than men)
- Clothing worn while inside the bag (dry long underwear and clean socks are good choices on cold nights, plus they help keep body oils off your bag; a cap and neck gaiter keeps body heat from radiating away; fleece pants and jackets help on colder-than-expected evenings)
- Adjustments you make while in the bag (keep the bag zipped up and the hood cinched on cold nights; be careful to not breathe into the bag, since moisture has a negative effect on the insulation)
- Food in your stomach (the process of digestion helps produce warmth)
- Hydration (if you're not well hydrated the food won't help much)
- Even experienced campers and backpackers can be surprised by unexpectedly cold overnight conditions, particularly during trips in the spring and fall. It's smart to be prepared.

**Tip:** To be ready for those extra chilly nights, select a bag with a temperature rating that slightly exceeds the low end of the temperature range you expect to experience. If a +20° F bag sounds right for you, a +10° bag would probably work well, too. On warm nights, you can always vent a bag (by using the double zipper to open the area near your legs) or simply drape it over you, unzipped. It never hurts to be a little over-prepared.

Recognizing that comfort ratings are merely general guides. Sleeping bags are organized in the following categories:

| Bag Type | Comfort Rating (°F) |
|---|---|
| Summer Season | +35° and higher |
| 3-Season Bag | +10° to +35° |
| Cold Weather | -10° to +10° |
| Winter/Extreme | -10° and lower |

Please note: Even in summer, a +35° bag may leave you feeling chilly when sleeping in the high country. If you think of yourself exclusively as a warm-weather camper, yet plan to routinely camp at higher elevations (3,000 feet and up), choose a bag with a comfort rating at least in the 20s.

## Insulation

Most base campers choose bags with synthetic insulation (versus goose-down insulation) for its strong overall performance and friendly price tag. The insulation or "fill" inside a sleeping bag largely determines a sleeping bag's:

- Weight (and thus its "warmth-for-weight" ratio)
- Compressibility
- Durability

### Down

Down is the wispy, fluffy undercoating found just beneath the outer feathers of geese and ducks. This natural fiber is an extraordinary insulator. Goose down is preferred to down from ducks, prized because it is believed its plumes offer a higher "fillpower" (explained below).

Down's positives include:

It offers tremendous warmth for surprisingly little weight (thus offering a superior "warmth-to-weight" ratio).
It can be compacted into very small sizes.
Its effectiveness outperforms synthetic insulation by years - even decades.

Down, though, does have a downside:

If it gets wet, it is of no value until it dries - and in the field, that can take a long time.
It is more expensive (keep in mind, though, that its resistance to deterioration makes it an outstanding long-term value).
Down is graded according to fill power - meaning the number of cubic inches one ounce of down will displace. The higher the number, the better the insulation.

**Synthetic Materials**

Synthetic materials are basically plastic threads (extruded polymers, to be technical). The threads are most commonly a continuous filament (a long, single strand). They can also be arranged in short "staples" up to four inches long. Usually the threads are hollow, reducing their weight and enabling them to trap more air.

The advantages of synthetic fill include:

It still provides some insulation when wet
Synthetic materials dry fairly quickly.
It's less expensive than down.
It's non-allergenic.

The shortcomings of synthetic fill are:

It's bulkier than down (so it takes up more space when you're carrying it).
It's heavier (it takes more weight to get the same warmth down provides).
The filaments gradually degrade over time.
The insulating "batts" of filaments are stiffer than down and do not drape over the contours of your body as effectively.

## Shell and lining

The outer shell of a camping bag is typically made of a ripstop nylon or polyester for durability. Many synthetic-fill bags feature a shell fabric treated with a Durable Water Repellent (DWR) finish. DWR is the stuff that allows water to bead up rather than soak through the fabric. Linings, on the other hand, should promote the dispersal of body moisture, so DWR is not used here.

**Tip:** How can you tell if a shell has a Durable Water Repellent (DWR) treatment? Rub a wet cloth across the surface of a bag. If the water beads up, then it has DWR.

## Shape and fit

Most family/base camping sleeping bags are designed with a rectangular shape for maximum comfort and roominess. If you choose 2 bags with compatible zippers, it's easy to mate them and create a double bed. You can lay 2 bags on a queen-size air mattress for the utmost in outdoor sleeping comfort.

Optionally, barrel-shaped bags can be used for both family/base camping and backpacking. Sporting a tapered design, they offer greater warmth and efficiency than rectangular bags, but are still plenty roomy for a comfortable night's sleep. They are especially popular with larger-frame backpackers or restless sleepers who don't like the tight fit of a mummy bag.

## Which is right for you?

Down works well for just about everyone except people who frequently find themselves in rainy conditions. Synthetic insulation is a good choice for kids and newcomers to camping and backpacking. It costs less than down and dries out relatively quickly if it gets wet. Many women's bags are cut to accommodate a woman's body shape and preference for extra insulation. Down always wins in terms of weight, compressibility, warmth and durability. Yet the value and performance of synthetic bags makes them very popular. Synthetic bags are improving each new model year, and they're champs when rain is a threat or cost is a factor.

What about length? Do you need a "regular" or "long" model? The general rule is as follows: If you are no taller than 6 feet, choose a "regular" length bag. If you are up to 6-feet-6, you want a "long" bag.

## Storage

You can prolong the life of any sleeping bag by hanging it in your garage or storing it loosely in a cotton storage sack - and not rolled up tight in a stuff sack. This prevents the insulation from getting permanently compressed, which reduces its insulating properties.