

Sleeping Bags

Sleeping bags for winter camping should be rated to temperatures below what you will likely experience if you want to be comfortable. If the nighttime temperature can drop to -15° Fahrenheit, then your bag should be rated to -30° Fahrenheit. There are a variety of different fills for sleeping bags: down, Primaloft™, Microloft™, Qualofill™, Polarguard™, etc. The bag itself should be a mummy style bag with a hood. It should also have a draft tube along the zipper and a draft collar at the neck. In sleeping bags, you want the bag to snugly conform to your body. If the bag is too big, you will have large spaces for convection currents and you will be cold. In a bag that has too much space, you may need to wear clothing layers to help fill up the space. You can opt for the expedition bag which is rated to -30° Fahrenheit or you can use a three season bag rate rated to 0° Fahrenheit and augment it with a vapor barrier liner (adds 5-10 degrees), a bivy sack (adds 5-10 degrees), and/or an overbag (a summer weight bag that fits over your mummy bag - adds 15 - 20 degrees —make sure it is big enough to fit over the mummy without compressing it). Keep in mind that each of these options has advantages and disadvantages in terms of price, weight, and volume taken up in your pack.

Foam Pads

You also need to insulate yourself from the underlying snow. Foam pads (Ensolite™) or inflatables (Thermarest™) work well. Your insulation should be a least 1/2 " thick (two 3/8 " summer pads work well, or use a Thermarest™ on top of a 3/8 " foam pad). It best to use full length pads so that all of your body is insulated.

Stoves versus. Fires

In most cases you will be taking stoves and fuel for cooking. Fires are possible in some locations, but in high use areas, it is best to rely on a stove as firewood can be difficult to find in the winter. Your stove should have good heat output. In order to insulate the stove from the snow (so it doesn't melt itself into a hole) place something underneath it like a pot lid, or a piece of fiberboard. Since the burner is usually significantly smaller than the pot bottom, placing a metal pot lid on top of the burner can also help spread the heat more efficiently to the pot. Wind shields are also helpful in the winter to concentrate the heat. Priming stoves in the winter can be difficult. It is best to use alcohol or lighter fluid rather than trying to prime the stove with white gas.

Fuel - plan on 1/4 quart per person per day if you need to melt snow for water. Plan on 1/8 quart per person per day if water will be available. *Make sure you have at least a day's surplus of fuel in case of bad weather, water being unavailable, etc.*

3. FOOD

Planning food for winter activities must take into account the great demands the cold weather and physical activity placed on the body along with the difficulty of preparing foods in the winter (it takes time, stove fuel) and having a menu which appeals to the group). Appetite is generally reduced during winter activity even through the food needs of the body have increased. If the meal isn't appealing, it won't get eaten. In some situations you literally need to force yourself to eat.

Food types

All foods are made up of varying proportions of the three basic food types - carbohydrates, fats, proteins, and water, vitamins and minerals. Each of the three major types can be converted into simple sugars and burned by the body to produce energy but the time required for conversion increases as the complexity of the molecule increases, so carbohydrates are quicker to convert than proteins and proteins quicker than fats.

Dietary Percentage for Winter Camping	Food Type	Nickname	Description
50%	Simple Sugars	kindling	5 calories/gram (1,800 cal./lb.) - released quickly.
	Complex Carbohydrates	sticks	5 calories/gram (1,800 cal/lb.) - released quickly. They are easy to digest. Candy, cereal, bread, rice, macaroni, dried fruit, vegetables.
20%	Protiens	logs	5 calories/gram (1,800 cal/lb.) - generally released slowly. Proteins are primarily used for maintenance and building of body tissue. Meat, fish, cheese, milk, eggs, nuts, grains.
30%	Fats	logs	9 calories/gram (4,100 cal/lb.) - released very slowly but are useful because they release heat over a long period. However, it takes more energy and more water to break down fats into glucose. Margarine, nuts, cheese, eggs, and fats from pepperoni, salami.

Vitamins and Minerals - are generally found in most foods we eat and for a trip less than 7-10 days no special resources are needed. For longer trips and expeditions vitamin and mineral supplements are necessary. See a physician to get specific recommendations for expeditions.

Caloric Requirements

General caloric requirements increase in the winter due to the energy expended in keeping the body warm. Caloric requirements for different activity levels are summarized below.

<u>Activity</u>	<u>Caloric Requirement (kilogram-calorie/day)</u>
Basal metabolism	1,500 calories
Sedentary occupation	2,500 - 3,000 calories
Three season backpacking	3,500 - 4,000 calories
Winter backpacking	4,500 - 5,000 calories

Keep in mind that there are definite individual variances on these figures based on age, body metabolism, health, etc.

Meals

Avoid taking fresh food in the winter (fresh fruit, vegetables, eggs). These all contain water and weigh a lot (and you have enough to carry). The exception to this is cheese, butter, or meats (needed for their high fat content). Take mostly dry foods (cereal, pasta, rice, wheat, oatmeal,) baked goods (brownies, cookies), or freeze dried foods (expensive but very lightweight and quick to cook which can save on stove fuel).

1. Breakfast - should not be a complicated meal but should be a complete one since it supplies the foundation for a full day's work. Time is also a factor since you probably want to get up and moving. Just standing around in camp in the early morning (cold) hours only leads to cold feet and bodies. Since the easiest thing to cook is water it is best to go for items which can be made in each individual's cup. Suggestions include: instant oatmeal with hot milk & margarine, hot Tang™, Granola with hot milk, hot Jello™, hot chocolate with extra milk & margarine.

It is best to supplement some of these items with extra powdered milk to add additional protein and margarine for fats. This is the meal to be careful *not* to dump too much sugar into the bloodstream at once, but rather to eat a good mix of all three major food types. The sugars will get you started and the proteins and fats will keep you going through the morning.

2. Lunch - There are two approaches to lunch on a winter trip. One is to stop for a traditional lunch and take a long break. This means cessation of activity which can lead to people getting cold. Additional layers would need to be put on and taken off. All of this adds up to a lot of time. But this also allows time for exploring an area and taking it easy. You can break out the stove and cook up a hot meal if you like. The other approach is carrying a personal lunch which can be eaten throughout the day, at scenic points, water stops, clothing breaks, etc. The second approach minimizes the amount of time people would be standing around, but also doesn't provide a major rest stop. In both cases you should include all the food groups by having some of the following items: meats, cheeses, nuts, dried fruit, raisins, cookies, candy, granola bars.

In the case of an “eat through the day lunch” a general formula is to take the following per person per day:

- 1/2 - 3/4 lb. GORP - raisins, peanuts, M&M's, sourballs coconut, chocolate morsels etc.
- 1/4 - 1/2 lb. Lunch Meat and/or Cheese - cut into bite size chunks so you don't break your teeth
- Other items include cookies, brownies, peanut butter, bagels, etc.

3. Dinner - It is often good to start dinner with an instant soup or a hot drink that can be made in each person's cup. This gives some internal warmth while waiting for the main course. In the winter, the main dish is usually some form of one pot glop/stew. This is to save time and stove fuel. A glop starts with a soup or gravy base, and includes a starch (rice, noodles), some vegetables (frozen vegetables keep well on winter trips), whatever protein you are carrying (lunch meat, cheese, canned chicken, tuna). This should be spiced to make it tasty. Remember, at the end of the day you will be more tired than hungry and having an interesting meal is essential to get you to eat.

The other approach to dinner is freeze-dried foods. These have the advantage of simply adding the dish to boiling water so less fuel is needed and they weigh very little. There are a number of companies offering these items. They are generally more expensive than what you would pay for basic staples like rice & noodles. Be aware of portion size. Some companies give an unrealistically high estimate on how many their meal pack will feed.

The meal is concluded with hot drinks (tang, tea, hot chocolate, jello etc.) and possibly dessert. At the end of the meal water should be melted/heated up for personal water bottles at night. (*See water section below*). Dehydrated foods (which are different than freeze dried *are not* recommended because they require large quantities of water to rehydrate them).

4. Food for sleeping - you need to take some of your lunch for the next day to bed with you. This allows fresh items like the meat and cheese to thaw. If you wake in the middle of the night and are cold (or just before you go off to sleep) it is best to eat proteins. The protein will be broken down more slowly so the heat will be released over a longer period of time. If you eat a sugar, you will get a quick “heat high” and then your body temperature will drop back down, sometimes falling below its previous level.

5. Utensils - all the personal utensils you will need is a large plastic cup (insulated if possible) and a plastic spoon. (*Do not bring metal utensils in winter*). It is also recommended that you tie an idiot string between the cup and the spoon. Cleaning these utensils is generally only scraping out the remainder with snow. Anything left will be part of your next meal.

6. Food Packing - You will need to repack your food to minimize the amount of trash you bring in with you. It