Winter Outdoor Experience 2012

The views expressed are those of the presenters and do not necessarily represent those of the BSA, Blue Mountain Council, or local charter organizations. This material is intended as a introduction, not a complete training to cold weather camping and activity preparation.

This Information is intended as reference, and is in no way a complete evaluation of all the skills, equipment, experience or common sense necessary to safely enjoy the outdoors in winter conditions.

Remember- BE PREPARED.

2012 Winter Outdoor Experience

9:00	Opening
9:05	Introduction to Winter Experience Video
9:25	Hypothermia / Frostbite Power Point
10:00	Fire Building (Rob Grandstaff)
	Klondike Derby Style / Survival Fires
10:30	Break
10:40	Shelter Video / Power Point (Ben Case / Ryan Cornia)
11:00	Building Igloos and Snow Shelters (Ryan Cornia)
11:25	Winter Clothing / Personal Gear (Ben Case)**Techniques of How to Stay Dry**
	Evaluating Sleeping Bags / Day Pack Example (Case/Milligan)
	Evaluating Tents for Winter Camping
12:00	Lunch Break
12:20	Food and Menus/ Cooking Gear (Case/Milligan)
	Recap of How to Stay Dry
12:45	Video- Avalanche Safety (Don Zimmerman)
	Avalanche Safety Activities
1:30	Navigation (Case/Milligan)
1:45	Quiz / Group Review and Wrap Up

"One has to lie deep in the snow to learn how warm and protective it is. A den in the snow confines the body heat like a blanket or overcoat. It is a snug place, no matter how hard the wind may howl. One who holes up in the snow understands better the mysteries of the woods in the winter. He knows why the severe weather grouse squirm their way under soft snow and be quiet. He understands why deer bury themselves in drifts, lying a half day or more with just their heads sticking out. He learns something of the comfort of the bear in hibernation."

William O. Douglas, 1950

GUIDELINES: Dressing for Winter Camping

1. Materials for winter camp clothing: wool (covered by wind and water resistant material, like nylon), acrylic, polypropylene, or any synthetic (or synthetic blend) made for winter wear. Outer layer should be wind proof and water resistant. Avoid 100% cotton – it absorbs water and keeps you cold. ABSOLUTELY NO JEANS!

2. Wear layers of clothing – as you get warm from working, outer layers may be removed, then put back on as you cool off.

   Example: 1st layer: thermal underwear, socks (2 pair)
   2nd layer: turtle neck pullover or wool shirt with wool pants or sweatpants
   3rd layer: sweater or sweatshirt
   4th layer: winter jacket and snow pants, stocking cap, waterproof gloves or mittens, snow boots

3. After working in the snow all day, your clothes and gloves will be wet from snow and sweat, so, at the end of the day change into dry underwear and sweat suit – suitable for sleeping in. Also, put on clean, dry socks, mittens and stocking hat for nighttime wear.

4. In the morning, it is a good idea to change again into a clean, dry sweat suit, or clothes, since nighttime perspiration makes clothes moist. Be sure you have dry socks, gloves, and hat for the new day.

CHECK LIST FOR COLD WEATHER CAMPING – 1992

Personal Gear – required clothing
- Thermal or polypropylene long underwear (NOT COTTON)
- 2 Wool shirts or sweaters
- Sweatshirt and sweatpants (to sleep in)
- Wool pants, ski pants or snow pants
- Warm coat, with hood if possible, water resistant
- Rain gear, poncho or raincoat
- Snow boots
- Two pair of wool or synthetic socks
- Mittens or gloves, insulated and waterproof
- Stocking cap, regular
- Stocking cap that can be pulled over face with a hole for the eyes and nose
- Scarf (optional)
- Snow gaiters (optional)
- Chapstick

Extra clothes – in a plastic bag
- Pants, wool or synthetic blend (Scout pants)
- Sweatpants, synthetic blend
- Wool or synthetic socks
- Mittens, wool or waterproof mittens or gloves
- Shirts, sweaters, or sweatshirts

Equipment:
- Backpack
- Large plastic bag to cover backpack
- Large plastic bags for wet clothing
- Winter sleeping bag or 2 summer bags (Needs to be a total of 6 inches of thickness to be good for –20 degrees F.)
- Stuff sack with sleeping bag, inside of plastic bag, then in a second stuff sack to keep the sleeping bag dry
- Foam sleeping pad, 2 would be better
- Plastic ground cloth
- Spoon, cup, and bowl
- Canteen or water bottle, 1 quart and must not leak
- Folding pocket knife with rope attached and tied to belt
- 50 feet of 1/8" nylon rope

Flashlight with extra batteries
Matches, dipped in wax and in waterproof case
2 firestarters
Shave kit
Compass, with a string attached
Shovel, with your name on it

Munchies:
M & M's
Peanuts
Raisins
Granola Bars
Kudo bars
Trail mix

Emergency food:(only used for survival) – to be put in a separate plastic bag
2 pks. Hot chocolate mix
M & M's
2 Lipton Cup-o-soup
Peanuts
Raisins

Additional things:
Sunscreen lotion
Sunglasses
Wisk broom & sponge (to keep tent dry)
Foam pad, for standing and sitting on, (about 2' x 2')

Patrol Gear:
1 gallon jug of water, with a flag so you can find it under the snow
First aid kit
Food
Menu
Duty roster
Snow saws, one per two Scouts
Two-man tents
Dining fly, nylon, 10' x 10' minimum
Collapsible 2 ½ gallon plastic water container – filled with water
Brillo scouring pad
Camper soap
1 box of 33 gallon plastic trashcan liners
Paper towels

Cooking Equipment:
Pot
Coffee pot
Large spoon
Stove filled with fuel
Small board to set stove on

After your parents have checked all your clothes and equipment to be sure you have it all and inspected your pack, have them sign this check list.

_____

(parents signature)

Winter Camping

By Brian J. Murrey

Brian J. Murrey - Assistant Scoutmaster and Outdoors Activities Planner Troop 120 -- brian@iquest.net -- Crossroads of America Council

PLANNING FOR WINTER CAMPING

Most of this information can be found in the Boy Scout Handbook. If you are going to be doing a lot of outdoor activities, this book is an invaluable source of know-how and advice.

MISCONCEPTIONS ABOUT WINTER CAMPING

Myth #1: Leather hiking boots will keep your feet warm. -- FALSE

- The snug fit of most leather hiking boots can limit the circulation of blood in the foot. Especially with thick socks on. Overboots cut generously enough to hold your foot and shoe are much more effective. The cloth stitching in leather boots can also wick moisture into the shoe. Nothing is worse that wet feet in cold winter.

Myth #2: Waterproof clothing is ideal for cold weather camping. -- FALSE

- To keep warm, in the cold, your clothing must allow body moisture to escape. Moisture that is trapped too close to the body can wick heat away through evaporation. It is better to layer your clothing on in cold weather. Wool, Gor Tex, and polypropylene garments work nice in the cold. Always wear insulated underwear.

Myth #3: Winter camping does not require much preparation. -- FALSE

- Arctic conditions exist when the wind is blowing and the temperature drops below 20 degrees F. There are only seven states in the U.S. that do not experience arctic weather. Indiana is not one of them.. It is very important to prepare and even over prepare. I've never heard anyone complain about being too warm or having too many dry clothes on a winter campout.

Myth #4: Mental attitude has little to do with winter camping. -- FALSE

- A positive mental attitude is the most important ingredient in the success of cold weather camping trips. The demands of winter will drain your energy and you'll have to rely on yourself to keep your spirits high.

Myth #5: In cold weather, tasks can be done just as quickly as in warm weather. -- FALSE

- Every effort in cold weather takes longer to complete. Be sure to bring some winter patience with you when you camp in the cold.

CONSERVING BODY HEAT - THE PRIME OBJECTIVE

There are three ways to lose body heat. Keeping them in mind will help you be much

more aware of what you are or could be doing to keep your body warm.

RADIATION - The emission of body, especially from the skin areas exposed to the elements. A good set of gloves, hat, and scarf can help best in keeping bare skin to a minimum.

CONDUCTION - The absorption of cold by the body when sitting or laying on cold ground, or handling cold objects such as metal cooking utensils and metal canteens. This is why a decent sleeping pad is required for cold weather camping. The same goes for wearing gloves. A camp stool is a must on a winter camping trip. Try not to sit on the ground.

CONVECTION - The loss of body heat due to wind blowing across unprotected body parts. This situation can also be reduced by keeping bare skin covered with hats, scarves, and gloves. It is important to keep exposure to a minimum, ESPECIALLY in a windy situation. Convection heat loss can reduce body heat the fastest. Wet clothing will accelerate this process, making staying dry even more important.

OTHER CONCERNS

Tent Placement.

Whenever possible, place your tent in a location that will catch the sunrise in the morning. This will aid in melting off any ice and evaporating any frost or dew that may have formed during the night. This will also warm your tent as you awaken in the morning.Cold air sinks. Try to place your campsite on slightly higher ground than the rest of your surroundings. Try to choose a protected site if it is snowing or the wind is blowing.

Water Consumption In Cold Weather.

Dehydration can seriously impair the body's ability to produce heat. Drink fluids as often as possible during the day and keep a water bottle or canteen with you at night.

Cooking In Cold Weather.

Cooking in cold weather will take about twice as long as normal. Always use a lid on any pots that you are cooking in. This will help to hold in the heat and decrease the overall heating time. Make sure you start hot cleaning water before you start cooking. The pots and utensils must still be cleaned. Try to keep your menu to good one-pot meals. Things like stews, chili, and hot beans stick to your ribs, lessen the cleaning time, and provide good sources of energy and fuel for your internal furnace. A good high-calorie snack before bedtime will also keep you warm all night. Stay away from an overabundance of sugar, cheese is a good high-calorie bedtime snack.

Sleeping Tip #1.

Do not sleep with your mouth and nose in your sleeping bag. The moisture of your

breath will condense in the bag, and cause it to become wet and ineffective as an insulator.

Buddy System.

Buddies can help each other pack for a trek, look after one another in the woods, and watch for symptoms of frostbite, hypothermia, and exhaustion.

Checklist.

Make a checklist of everything you need before you start to pack. Then check each item off as you pack it. This way you will not forget anything.

Keeping Warm

Keeping warm is the most important part of cold weather camping. Use the C-O-L-D method to assure staying warm.

- C - Clean

Since insulation is only effective when heat is trapped by dead air spaces, keep your insulating layers clean and fluffy. Dirt, grime, and perspiration can mat down those air spaces and reduce the warmth of a garment.

- O - Overheating

Avoid overheating by adjusting the layers of your clothing to meet the outside temperature and the exertions of your activities. Excessive sweating can dampen your garments and cause chilling later on.

- L - Loose Layers

A steady flow of warm blood is essential to keep all parts of your body heated. Wear several loosely fitting layers of clothing and footgear that will allow maximum insulation without impeding your circulation.

- D - Dry

Damp clothing and skin can cause your body to cool quickly, possibly leading to frostbite and hypothermia. Keep dry by avoiding cotton clothes that absorb moisture. Always brush away snow that is on your clothes before you enter a heated area. Keep the clothing around your neck loosened so that body heat and moisture can escape instead of soaking several layers of clothing.

Clothing.

- Footwear.

As with other clothing, the layer system is also the answer for foot- wear. Start with a pair of silk, nylon, or thin wool socks next to your skin. Then layer on several pairs of heavier wool socks. When and if your feet become damp, change into another pair of dry socks at the first opportunity. Rubber overboots will protect the feet from water and will allow more comfortable shoes to be worn within.

- Mittens and Gloves.

  Mittens allow your fingers to be in direct contact with each other. They will keep your hands warmer than regular gloves that cover each finger. Select mittens that are filled with foam insulation, or pull on wool gloves and cover them with a nylon overmitt. Long cuffs will keep wind and snow from getting in.

- Headgear.

  The stocking hat is the warmest thing you can cover your head with in cold weather. Get one that is large enough to pull down over your ears. Also ski masks are great in the winter and can help in keeping your neck and face warm as well. Noses and ears can be very easily frostbitten, so a scarf can be an invaluable item to have.

- Parka and/or Overcoat.

  Your coat or parka is the most important piece of your winter clothing. It needs to be large enough to fit over extra clothing without cutting off blood flow, and allowing ventilation to keep moisture away from your body. A large permanently attached hood will prevent heat loss around your head and neck.

- Sleepwear.

  Never should you sleep in the same clothes that you have worn all day. They are damp and will cause you to chill. This could cause frostbite and hypothermia. It is advised that you bring a thick pair of sweats and thermal underwear to sleep in. Keep the thermals and sweats for sleeping in only. Do not wear them during the day, this will keep them the driest. Also be sure to have a couple of layers of wool or heavy thick cotton socks on as well. Always sleep with a stocking hat on your head. Your sleeping bag needs to be a winter rated bag. Typically rated down to 15 degrees and stuffed with 5 pounds of Holofil, Fiberfil, or other polyester ticking. It is also a very good idea to have some kind of sleeping mat to use in the winter. The mat can be a $90 Thermal Rest from Galyans (Scouts get a %10 discount by showing Scout ID card) or a piece of high density rubber foam at least one inch thick. In cold weather camping you never want to sleep on an air mattress or off the ground in a cot. The air under you will cool you off in no time and this would create a threatening situation. If you don't have a sleeping mat, bring a spare wool or natural fiber blanket to use as a ground pad under your sleeping bag. The sleeping mat is worth it's weight in gold.

Have fun!

Every year, tens of thousands of boys will go winter camping. Although the threat of danger is always present in a winter camp, planning and knowledge can overcome this. It is very important that the Scouts come prepared. If a Scout feels that at this time winter camping is not for him, then he should not go. There is always next year and the year after and so on. If a Scout comes to camp and I do not feel that he is prepared, I will have to ask him to stay behind. Make sure you are ready, and most of all, SAFE.

Some Snow Camping Rules

SHIRTS

The outer shirt of jacket should be of a material that will stop wind and shed snow. Some slick synthetics work well.

PANTS

As with shirts, the outer pair of pants should shed snow and block wind. Some types of ski-pants do both well.

Problem with wind-resistant synthetic outer layers (save the most expensive, such as Gore-Tex) is that if they keep moisture out, then they'll keep it in, too. So perspiration, wicked away from the skin by the polypro/wool inner layers, cannot escape. At the outer layer, where it's coldest, that moisture comes close to freezing (if it doesn't in fact), and (either way) progressively blocks subsequent perspiration from escaping. Result: Damp clear through. If one cannot afford the $80-400 per garment for Gore-Tex, next best is to go with a blend of synthetics and natural fibers that'll cut the wind and let moisture pass in both directions. I prefer %60-synthetic- to-%40-natural blend, but %65-%35 has proponents. If one is properly layered, it's perfectly feasable to be comfy while the outer surface is at or below freezing. Vapor pressure will force perspiration to the outer surface of the outer garment, where it freezes and can be brushed off. Snow from the outside won't melt, and it too can (and _must_) be brushed away. When this is so, it doesn't really matter what the materail is, so long as snow doesn't adhere when brushed, and moisture passes through. I have been perfectly happy in outer shells of %50-%50.

The problem with ski-pants is that they are cut fashionably tight, whereas baggy is warmer. Again, treated "wetlock" fabrics popular for insulated skiing overpants won't let moisture escape. I go with $35 army surplus baggy wool pants, and wear home-made %65-%35 overpants (straight cut leg, draw-string waist, ankle ties (usually left untied and just tucked into Sorrels (or gaiters when the snow is deep))).

GROUND CLOTHS AND PADS

Standing all day long is uncomfortable, but sitting on snow just gets your highly vascular (big muscle) bottom wet, making you cold in a hurry. Rock may be dry, but it sucks heat even faster. I paid $6 for the cheapest closed-cell foam pad that I could find, and cut it into 2 by 2 foot squares. Everybody carries a square on the outside of the pack, so we can flop down anywhere and sit dry and insulated during breaks on the trail. "Don't leave home without it."

Winter Camp Training - Food and Cooking

Keep It Simple: The most important rule for winter camping.

Drink A Lot: 3 to 4 quarts of water per day to replace what you're loosing. Drink frequently even if you're not thirsty. Many sources: Hot drinks are best when it's cold; chocolate, apple cider, Tang, Kool-Aid, water, tea, coffee, etc.

A wide mouth water bottle works best on the trail - bright colored tape markings make them easier to find.

> **Warning signal** - Dark yellow urine. If it is dark, you are not drinking enough.

Eat A Lot: 4,000 to 5,000 calories per day during strenuous winter camping. An adult requires about 2,700 calories on a normal day.

Fill your calorie requirements by packing light weight foods in roughly the following proportions: 50% Carbohydrates, 20% Proteins, and 30% Fats.

◇ Carbohydrates (quick efficient energy source)
sugar (hard candy), honey, rice, pasta, cereals, and crackers.

◇ Protein and fat foods (heavier, high density energy foods, slower energy sources than carbohydrates)
Sausage, salami, pepperoni, cheeses, nuts, peanut butter, canned chili, chocolate, butter, margarine, cooking oil.

◇ Dried foods (light, inexpensive, can often be bought in bulk)
Cup-O-Noodles, Cup-O-Soup, spaghetti, macaroni, Top Ramen, oat meal, pancake mix, corn meal, and dried vegetables
Hot chocolate, hot apple cider, tea, coffee, hot Tang, dried milk

◇ Freeze-dried foods (very light, expensive)
Wide variety of types available, check sporting goods stores and outdoor goods catalogs.

◇ Limited Fresh fruits & vegetables (heavy, freeze damage)
Can be made-up with vitamin fortified fruit drinks, or on extended trips take vitamins.

◇ Snacks (for eating between meals or while on the trail to keep a continuous supply of fuel flowing to your body)

Raisins, peanuts, M&M's, cut up cheese, salami or sausage, hard candy, or granola bars, etc.

◇ Extras (add a lot to your eating enjoyment)
sauce mixes, bouillon cubes, honey, syrup, brown sugar, popcorn, herbs and spices, etc.

Cooking: One-pot Simplicity - Makes food preparation and cleanup simple.

Cooking area layout: Many cooking area layouts will work equally well. The best arrangement for a group is dependent on the site selected, the number in the group, the type of equipment being used and the group's preferences. the type of winter camping (fixed or mobile) also has a major effect.

Fixed Site - will generally be larger. They can also include more "nice to have features" (storage areas, weather cover, fire barrel, clothing/gloves/boots drying area, etc.)

Mobile Site - are generally smaller and simpler than fixed sites. they generally have to be set up in an hour or so at the end of a hard days travel.

Stoves - Camp or backpacking stoves need to be used with an insulating support (1/4" plywood or fiber board of the appropriate size) so they won't sink into the snow.

Fires - Build on insulating base (earth or an old trash can lid work well) or in a fire barrel.

Caution: Take care in working with stoves and fires with gloves and insulated clothing on. They can easily be burned or melted before you feel the heat.

Food and Water Storage - Must avoid freezing some items, example, water jugs - bury them in the snow (mark location)

Hypothermia -- The Silent Killer

By Gary Ross, EMT-D

Hypothermia is condition of general body cooling (in contrast to frostbite which is localized). It can kill you. But do not let the introduction mislead you. Hypothermia generally occurs during cold weather, but it can occur at any temperature (but generally below 60 degrees).

CAUSES:

Three factors are major causal factors in hypothermia: cold, water, and wind.

1) In a cold environment, the body must work harder to regulate heat; contact with cold air, water, snow, ground or clothing will cause heat losses due to conduction.

2) If a person is submersed in water, heat will be lost due to conduction and convection. At a water temperature of 32 degrees death occurs in 15 minutes; at 70 degrees survival for as long as 48 hours has been observed. Loss of heat by evaporation is a major contributor also. Wet skin or clothing will cool of the body quickly, especially if it is windy and/or cold.

3) Wind will cause heat loss due to convection, and will accelerate heat loss due to evaporation.

4) Hypothermia occurs much more quickly in the elderly and chronically ill. Hypothermia is insidious. As the body's core temperature drops, more and more body systems suffer from the effects of cold. The presence and severity of hypothermia can be assessed by the signs and symptoms below. A patient is hypothermic at any temperature below 98.6 degrees fahrenheit (rectal). 98-94 degrees is mild hypothermia; 94-84 degrees is moderate hypothermia, and below 84 degrees is severe hypothermia.

STAGES OF HYPOTHERMIA:

98 - 95 degrees - Sensation of chilliness, skin numbness; minor impairment in muscular performance, especially in use of hands; shivering begins.

95 - 93 degrees - More obvious muscle incoordination and weakness; slow stumbling pace; mild confusion and apathy. Skin pale and cold to touch.

93 - 90 degrees - Gross muscular incoordination with frequent stumbling and falling and inability to use hands; mental sluggishness with slow thought and speech; retrograde amnesia.

90 - 86 degrees - Cessation of shivering; severe muscular incoordination with stiffness and inability to walk or stand; incoherence, confusion, irrationality.

86 - 82 degrees - Severe muscular rigidity; patient barely arousable; dilatation of pupils; inapparent heartbeat and pulse. Skin ice cold.

82- 78 degrees and below - Unconsciousness; death due to cessation of heart action.

TREATMENT OF HYPOTHERMIA:

Two situations are possible. One is where evacuation to a medical facility is possible within several hours. The other is where evacuation will be delayed or impossible. The other parameter is stage of hypothermia.

Moderate hypothermia;

Get the patient as sheltered as possible (tent, snow cave, etc.) Remove wet clothing and replace with dry clothing. Keep patient laying down. Place patient in a sleeping bag with a second rescuer of normal body temperature. Direct skin to skin contact is preferable. Warm stones or bottles can also be placed in the bag (be careful not to burn patient). Make sure all extremities and exposed areas (e.g. face, nose, ears) are protected. If patient is conscious and able to swallow without danger to his/her airway, give sugar and sweet, warm (not hot) fluids by mouth. DO NOT GIVE ALCOHOL. If evacuation is IMPOSSIBLE and facilities permit, immerse patient in tub of water at 105 degrees Fahrenheit. Monitor patient's temperature rectally with thermometer if possible. Continue rewarming efforts until patient's core temperature is restored to normal. Always evacuate a hypothermic patient as quickly and gently as possible, including rewarmed patients.

Severe hypothermia:

Patients in severe hypothermia are often erroneously thought to be dead. Neither pulse, nor heart sounds, nor respirations may be apparent. Handle a severely hypothermic patient with great care - VERY GENTLE HANDLING. Cut away wet clothing and replace with dry clothing. Maintain an airway, but use no adjuncts (e.g. oral airway). Once you start CPR, DON'T GIVE UP. Get help. Do not attempt to rewarm patient unless evacuation is IMPOSSIBLE. Keep patient supine, in a 10 degree head-down tilt.

Handle every hypothermic patient very gentle. Rough handling can cause cardiac arrest and death. Get every patient into shelter, replace wet clothes with dry ones. Apply external heat if condition dictates. And give warm, sugary food and drink if patient's condition allows. Get help. If possible, have rescuers bring a heated oxygen unit, and administer to patient. Perhaps equipment can be air-dropped. Keep calm and do not become a victim yourself.

<u>THE HYPOTHERMIC PATIENT ISN'T DEAD UNTIL HE'S WARM AND DEAD.</u>

PREVENTION OF HYPOTHERMIA:

Dress properly for current and possible conditions. Be prepared for sudden weather changes especially at elevations. Have at least one wool garment for the upper and lower parts of your body. Wool is the only material with any insulating value when wet. Carry or wear a windproof, waterproof garment. Always have a wool hat and wool mittens. Have extra clothing available especially mittens and hats. A large proportion of body heat is lost through the head. Wear suitable boots, insulated if necessary; wear wool socks, and always carry extra wool socks. Avoid getting overheated and perspiring, this cools you down - fast. Wear layers and remove clothing as necessary. Better having extra than too little. Dress sensibly and expect the worst.

Sit out bad weather. Better waiting than be overtaken by a blizzard or thunderstorm. Do not push on through the night. Make camp early and rest thoroughly. You can continue tomorrow with a much greater safety margin.

Do not get exhausted. Exhaustion promotes heat loss, and thus hypothermia.

Besides, if your exhausted, you are probably drenched.

Do not get in over your head. If your experience is limited to day hikes on moderate trails, do not try to go out and tackle Mt. Washington in February. Be smart. Learn to use a map and compass. Learn fire starting techniques. Learn first-aid. Be calm. Be prepared.

Lastly, learn about hypothermia. Know the causes, warning signs, and treatment. Learn how not to get cold.

NOTE: Special hypothermia thermometers are available which measure between about 70 and 100 degrees Fahrenheit. I recommend carrying one in your first-aid kit on all cold weather excursions. Contact me for information on where you can purchase one.

I hope you found this information useful and important and feel free to contact me if you have any questions. Have fun in the great outdoors, but be careful. Mother Nature is never malicious, just incredibly powerful.
Gary Ross, EMT-D

The Wind Chill Index

Calm	Environmental Temperature (F°)																		
	40°	35°	30°	25°	20°	15°	10°	5°	0°	-5°	-10°	-15°	-20°	-25°	-30°	-35°	-40°	-45°	-50°
Wind Speed	**Apparent Temperature (F°)**																		
5 MPH	35°	30°	25°	20°	15°	10°	5°	0°	-5°	-10°	-15°	-20°	-25°	-30°	-35°	-40°	-45°	-50°	-55°
10 MPH	30°	20°	15°	10°	5°	0°	-10°	-15°	-20°	-25°	-35°	-40°	-45°	-50°	-60°	-65°	-70°	-70°	-80°
15 MPH	25°	15°	10°	0°	-5°	-10°	-20°	-25°	-30°	-40°	-45°	-50°	-60°	-65°	-70°	-80°	-85°	-90°	-100°
20 MPH	20°	10°	5°	0°	-10°	-15°	-25°	-30°	-35°	-45°	-50°	-60°	-65°	-75°	-80°	-85°	-95°	-100°	-110°
25 MPH	15°	10°	0°	-5°	-15°	-20°	-30°	-35°	-45°	-50°	-60°	-65°	-75°	-80°	-90°	-95°	-105°	-110°	-120°
30 MPH	10°	6°	0°	-10°	-20°	-25°	-30°	-40°	-50°	-55°	-65°	-70°	-80°	-85°	-95°	-100°	-110°	-115°	-125°
35 MPH	10°	5°	-5°	-10°	-20°	-30°	-35°	-40°	-50°	-60°	-65°	-75°	-80°	-90°	-100°	-105°	-115°	-120°	-130°
40 MPH	10°	0°	-5°	-15°	-20°	-30°	-35°	-45°	-55°	-60°	-70°	-75°	-85°	-95°	-100°	-110°	-115°	-125°	-130°

	Little Danger of exposed flesh freezing.
	Increasing danger of exposed flesh freezing (flesh can freeze within 1 minute).
	Great danger of exposed flesh freezing (flesh can freeze within 30 seconds).

Summary: Cold Injuries

Hypothermia is a lowering of the core body temperature occurring when heat loss exceeds heat production. It is a dangerous disturbance of body function. Mild hypothermia (above 93 degrees F - patient conscious, shivering, able to walk) is treatable in the field. Sever hypothermia (below 93 degrees -- patient unconscious, not shivering, unable to walk) requires rewarming in a hospital.

Signs and Symptoms of Hypothermia

*Mental
- Deterioration in decision making ability
- Slow and improper response to cold
- Apathy, lethargy
- Increased complaints, decreased group cooperation
- Slurred speech, disorientation progressing to incoherence & irrationality

*Muscular
- Shivering
- Loss of fine motor ability progressing to stumbling, clumsiness, & falling
- Muscle stiffness and inability to move (in severe cases)

Treatment for Hypothermia

*Mild Hypothermia
- Prevent Further Heat Loss
  - Dry
  - Remove from cold
  - Insulate
- Actively Rewarm
  - Hydrate, Hot drinks
  - Food
  - Sleeping bags

*Severe Hypothermia
- Evac to Rewarm
  - Dry, insulate
  - Prevent further heat loss, (apply heat)
  - ABC's
  - Handle gently

Frostbite is a local freezing injury classified as frostnip, superficial or deep. Frostbitten tissue is cold, gray, white or mottled. Frostnip only affects the skin and is easily treated with immediate rewarming. Superficial and deep frostbite progress into underlying tissue layers and should be rewarmed rapidly in warm water.

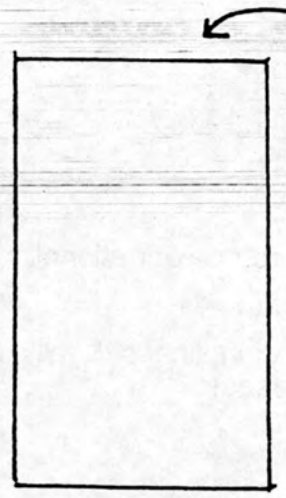
Treatment for Frostbite

* Delay rewarming until it can be done once and done well

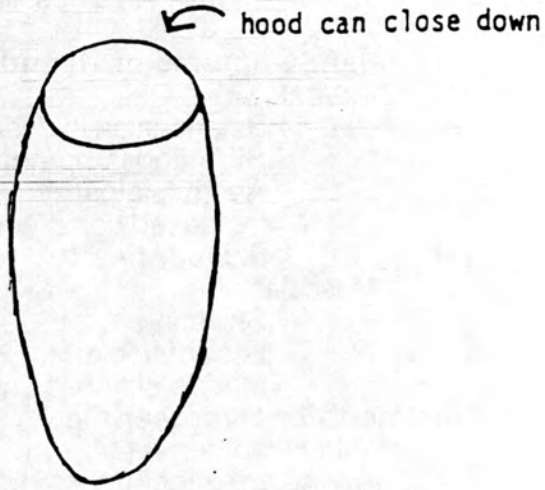
* Rapidly rewarm in warm water
  - The water should be between 100 and 108 degrees
  - Completely immerse the frozen tissue
  - Use a large basin
  - Thaw completely

*Post-thaw care
- Protect the thawed tissue from trauma
- Elevate to reduce swelling
- Place pads between toes and fingers
- Do not constrict the extremity
- Prevent refreezing

SLEEPING BAG CONSTRUCTION



Square Cut Sleeping Bag



Mummy Bag

ROUGH RULES OF THUMB:

1. A four pound square cut bag will have the same loft as a three pound mummy bag.
2. Mummy bags are warmer because the hoods can be gathered up and closed to face size.
3. A three pound Quallofil is about as warm as a four pound Hollofil II of equal size and shape.
4. Down and Quallofil are about equal in warmth for the same thickness.

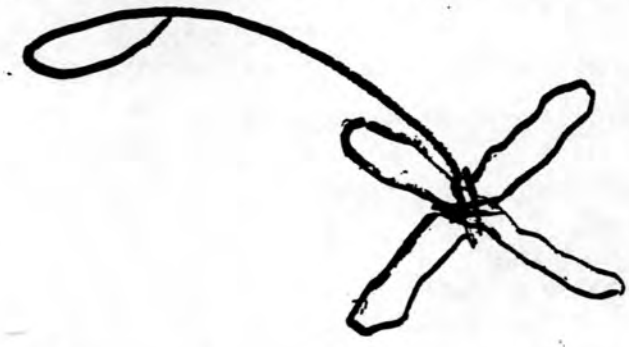
Tent Selection Guide Lines

A tent for use in the winter should be a 4 seasons tent. A 3 seasons tent is one suitable for Spring, Summer and Fall. The fourth season is Winter.

The basic difference between a 3 season tent and a 4 season tent is that a 4 season tent can be picked up after setting it up and place over soft snow. It can also be picked up and any dirt that accumulates in the tent can be dumped out prior to packing it away when used in the summer. There are no attachments to the ground required to set it up.

Don't however overlook a tent requiring a single guy line that can be tied to a tree or anchored to a snow peg or a deadman.

A deadman consists of two sticks tied together at 90 degrees apart from each other with expendable cord and a loop tied to it so that the deadman can be buried deep into the snow with the loop sticking out of the snow. Attach the tent to the loop. The next day the deadman will be difficult to retrieve and can be abandoned if required.



Deadman

Most 4 seasons tents have provisions for cross ventilation to reduce condensation within the tent. This is a very important feature. Check to see that you can still have ventilation in the rain and snow. Tents with small rain flies do not provide for good ventilation during rain or snow conditions.

The 4 seasons tents do come in a wide range of designs. Low cost versions have very abbreviated rain flies to reduce manufacturing cost and thus selling cost. These designs are meant for the uninformed buyer that only shops based on price only. You then end up with a very poor tent.

There are good buys in tents with fairly useful rain fly coverage if you shop around. These tents are just a little more that the bottom line tents that are purchased based on cost alone..

Self-Test--Winter Activities

1. When sleeping outside in the winter your greatest concern for keeping warm is to:

   ___ a. Have an oversize down bag good to 50 below.
   ___ b. Wear extra layers of clothing to bed.
   ___ c. Insulate below your sleeping bag to conserve heat loss.
   ___ d. Always use a space heater or stove.

2. In preparation for bed you should:

   ___ a. Sleep in the clothes you have on.
   ___ b. Put on an extra layer of clothing.
   ___ c. Change into new clothes for sleeping.
   ___ d. Sleep in the nude or nearly so.

3. Down bags should be fluffed prior to getting in. This:

   ___ a. Redistributes the down.
   ___ b. Gets rid of any sneaky mice.
   ___ c. Provides for maximum loft and insulative value.
   ___ d. Airs the bag out from the previous night's onion soup.

4. If your feet are getting cold:

   ___ a. Move around to restore circulation.
   ___ b. Put on your hat.
   ___ c. Lace your boots tighter.
   ___ d. Wear lots of cotton socks.
   ___ e. Drink some warm fluids.

5. Fishnet underwear is often preferred because:

   ___ a. It makes neat wafflelike designs on your back.
   ___ b. Helps to keep you dry.
   ___ c. Effectively traps warm air next to your body.
   ___ d. It gives your skin a chance to breathe.

6. Wool is often preferred over cotton because:

   ___ a. It insulates even when wet.
   ___ b. Acts as a more superior wind breaker.
   ___ c. Traps air more effectively.
   ___ d. Does not get as clammy.

7. In food preparation:

   ___ a. One-pot meals are preferred.
   ___ b. Fried foods like bacon, pancakes, hash browns are a must.
   ___ c. Always start from scratch.
   ___ d. Dinner should be a relaxing meal after a hard day about 8:30.
   ___ e. Dehydrated foods are the best.
   ___ f. Prepare as much as possible in advance, at home.

8. Fires are BEST STARTED by:

___ a. Book matches
___ b. Lighter
___ c. Stick matches
___ d. Firewater
___ e. Firestarter like cardboard and paraffin
___ f. Small candle

9. QUICK ENERGY can be obtained by:

___ a. Drinking a plain cup of strong tea or coffee.
___ b. Eating some chocolate.
___ c. Chewing on some meat or nuts.
___ d. Munching on fruit cake, brownies, date bar, etc.
___ e. Drinking alcoholic beverages.

10. HYPOTHERMIA means:

___ a. Being too hot when skiing.
___ b. Death from exposure.
___ c. A student is hyper in class and needs to see the nurse.
___ d. Death from cold and exhaustion.
___ e. Something to do with a nervous disorder.

11. MOST hypothermia cases develops in air temperature of:

___ a. Subzero.
___ b. Zero to 30 degrees.
___ c. Right on the freezing mark.
___ d. 30-50 degrees.
___ e. 50-65 degrees.

12. As a hypothermia victim:

___ a. You are losing body heat faster than it can be produced.
___ b. You will lose control of your hands.
___ c. Cold on your brain deprives you of judgment.
___ d. Your internal body temp is slowly but surely decreasing.
___ e. Without treatment you will go into a stupor, collapse, die.

13. Major causes of hypothermia:

___ a. Getting wet
___ b. Exposure to wind
___ c. Lack of food.
___ d. Inability to diagnose weather and changing conditions.

14. You can detect hypothermia by the symptoms of:

___ a. Uncontrollable fits of shivering.
___ b. Vague and slow slurred speech.
___ c. Memory lapses, incoherance.
___ d. Immobile fumbling hands.
___ e. Frequent stumbling.
___ f. Drowsiness
___ g. Apparent exhaustion -- inability to get up after a rest.

15. Rank in order (1, 2, 3, etc.) methods of obtaining water, the best way, for a 2 to 3 day winter camp trip.

___ a. Melt from snow.
___ b. Secure from an open stream.
___ c. Melt from ice.
___ d. Chop a hole in the lake.
___ e. Carry with you in an unbreakable plastic container.

16. In selecting menu items: You should make a point to:

___ a. Bring lots of sugary products.
___ b. Avoid fatty foods.
___ c. Plan lots of hot liquids.
___ d. Select lots of meat and fruit.

17. In selecting clothing items you should:

___ a. Rely exclusively on prime grade goose down.
___ b. Include at least one set of wool.
___ c. Wear cotton exclusively to create the "jean look."
___ d. Use all nylon clothing.
___ e. Have extra clothing along.

18. Proper dressing for winter activity should include:

___ a. A super thick heavy-duty parka for trail use.
___ b. A one-piece suit (snowmobile) to minimize heat loss.
___ c. Layers of wool, cotton and synthetic.
___ d. A hat for your head.
___ e. Tight-fitting ski wear.

19. Materials like Polarguard and Fiberfill II often are used in place of down because:

___ a. They are less expensive.
___ b. They resist moisture.
___ c. They insulate equally well for the same thickness.
___ d. They are much more compact than others.

20. Some potential conditions that may cause hypothermia are:

___ a. Canoeing in the early spring and late fall.
___ b. Participating in outdoor winter-snow activity.
___ c. Stranded in your car during cold weather.
___ d. Duck hunting in late fall storm.
___ e. Backpacking in the mountains, during light shower in higher elevations.
___ f. Walking home from school just after a shower from practice.
___ g. People who often skip meals, but work at a steady pace.
___ h. Skiing at subzero temp with wine flask consumed.

The MacScouter -- Scouting Resources Online

Winter Camping & Hypothermia

Systematic Hypothermia: Core Temperature

By Kevin Hamilton

	Degree of Hypothermia	Signs and Symptoms	Cardiorespiratory Response	Level of Consciousness
95 F -	Mild	Shivering Foot Stamping		Withdrawn
90 F -	Mild	Loss of Coordination		Confused
85 F -	Moderate	Lethargy	Slow Pulse	Sleepy
80 F -	Severe	Coma	Weak Pulse; arrthythmisias; slow respirations	Irrational
78 F -	Severe	Apparent Death	Ventricular fibrillation, Cardiac arrest	Unconscious

Hypothermia

Hypothermia is the rapid, progressive physical and mental collapse that occurs when a person's body is chilled to the core. It can kill you!

IF YOU ARE EXPOSED TO COLD—worsened by wet, wind, and exhaustion—THINK HYPOTHERMIA!

It occurs most often when the temperature is between 30 and 50 degrees, making it harder for us to recognize the danger. Don't be fooled—watch yourself and others for symptoms.

When exposed to cold, wet, and wind, your body begins to lose heat faster than it can produce it. To compensate, you either exercise to warm up, or your body responds with involuntary adjustments to maintain your normal internal temperature. Unless your reserves are replenished, both of these sap your energy.

When your energy reserves are exhausted, your body temperature drops. Lowered body temperature affects the brain, impairing your judgment and reasoning power. The worst part of this is that you may not realize that this is happening.

Symptoms:

- Uncontrollable fits of shivering.
- Vague, slow, slurred speech.
- Memory lapses, incoherence.
- Fumbling hands.
- Frequent stumbling; lurching gait.
- Drowsiness.
- Apparent exhaustion.
- Inability to get up after a rest.

This is hypothermia. Your internal temperature is sliding downward. Without treatment, this slide leads to stupor, collapse, and death.

Treatment:

Believe the symptoms! Treatment must be immediate and drastic. The victim may deny being in trouble.

Get him or her out of the wind and rain.

Get them into dry clothes and a warm sleeping bag. KEEP THE VICTIM AWAKE! TO SLEEP IS TO DIE!

The one sure way to get vital organs to produce heat is EXERCISE; Provide support if necessary and force the victim to walk. The person WILL NOT want to do this, but he or she will thank you when they've recovered!

Give the victim warm drinks, but no alcohol.

If the person is semiconscious, leave him or her stripped. Get the victim into a sleeping bag with another person who is also stripped. If possible, put the victim between two warmth donors. Hypothermia victims may be extremely drowsy, but DO NOT LET THEM SLEEP!

Defense:

The best defense against hypothermia is to avoid exposure. Recognize hypothermia weather and dress for it. Stay dry and protected from the wind. If you cannot stay dry and warm under existing weather conditions with the clothes and equipment you have, get out of the weather. Build a fire and make camp—while you still have a reserve of energy. Fuel your body often with small amounts of energy-rich food, and avoid over-fatigue.

The dangerous thing about hypothermia is that we don't realize what is happening. We may feel fine, but exercise may be the only thing preventing hypothermia. When we stop, body heat production instantly drops by 50 percent or more. Violent shivering may begin, and we can become hypothermic in a matter of minutes.

"It's always better to have it and not need it, than to need it and not have it."

Patti Rodgers
USDA-Forest Service
1976-Present

Winter Camp

Choosing a Winter Campsite

Factors to Keep in Mind

-Camping regulations
-Other campers
-Wind: avoid ridge tops and open areas where wind can blow down tents or create drifts.
-"Widow Makers:" look for dead branches hanging in the trees overhead.
-Low-Lying Areas: the coldest air will settle there.
-Avalanche Danger: select sites that do not pose any risk from avalanches.
-Exposure: south-facing areas will give longer days and more direct sunlight.
-Water Availability from lakes or streams will save you from having to melt snow for all your water.
-Level Ground makes for a more comfortable night.

Setting up Camp

When you first get into camp, use your snowshoes or skis to tramp down areas for tents and your kitchen. If possible, let the snow "set up" for 30 minutes or so. This will help the snow harden and allow you to take off your snowshoes or skis. Set up your tents with the openings at a 90 degree angle to the prevailing winds. Stake out the tents. On a cold night you can build snow walls on the windward side of the tent. Mound the sides of the tent with snow (have someone inside pushing out on the tent to keep it from collapsing). When the snow sets up you will have a hybrid tent-snow shelter, which will have better insulation than the sides of the tent alone. Dig out a pit in front of your tent for a porch. This makes taking your boots off much easier. Put your foam pads (two are better than one) in the tent and un-stuff your sleeping bag and place it in the tent so it can "expand" from its stuffed size.

If the snow is deep, you may want to carve out a pit for your kitchen. Dig a pit at least two yards in diameter (for 4-6 people). You can mark out the circle using a ski or a rope. Dig down about one yard and pile the excavated snow around the perimeter. Pack the snow at the perimeter of the hole with your shovel. This will give you a two yard deep area, protected from the wind. You can carve out seats and benches, put your skis or snowshoes behind the pile as backrests, carve places for stoves, etc.

Tips for Your Next Winter Camping Trip

Health & Safety

Use the buddy system for winter camping. Buddies can check each other for frostbite, make sure no one becomes lost, and boost the morale of the entire group.

Always test the thickness of ice before venturing any distance from the shore. Ice should be at least 3 inches thick for a small group; 4 inches of ice is safe for a crowd. Since ice thickness can vary considerably, it is best to stay near the shoreline of large lakes.

Gear & Clothing

Encourage everyone in your group to wear brightly colored outer clothing so that each person will be more visible, especially during severe weather.

Use alkaline batteries in flashlights. Standard batteries deteriorate quickly in cold weather. Tape the switch of your flashlight in the "off' position until you are ready to use it. This will prevent it from being turned on accidentally while in your pack or on your sled.

Punch a hole in the top of your ice chisel and string a stout cord through it. Before trying to chisel a hole in ice, anchor the cord to something large or too heavy to be pulled through the hole so you will not lose your chisel in freezing water when the ice is penetrated.

Snow is the greatest thief in winter, swallowing up small dropped items. Tie or tape a piece of brightly colored cord to small items to they can be seen in snow. Some items, such as mittens, can be tied to larger items, such as a parka, to prevent them from being dropped and lost.

Always use a funnel to refuel a stove so you won't frostbite your fingers by accidentally pouring fuel on them. Fuel evaporates at a high rate of speed and quickly removes heat from anything it touches.

Place a stove or fire on a platform of logs or rocks so it will not melt through the snow. An inexpensive platform can be made from a small piece of thin plywood before you go camping.

Never light or use a stove inside a tent or snow shelter. A tent may catch fire, and a snow shelter may help lead to carbon monoxide poisoning. Neither of these potential mishaps is worth the risk.

A windscreen is essential for using a stove in the winter. Even a slight breeze will direct the heat away from its intended mark.

Travel & Navigation

Plan to cover no more than 5 miles per day on a winter camping trek on snowshoes. An experienced group can cover 10 to 12 miles on cross-country skis.

Fatigue encourages accidents. Rest occasionally when building a snow shelter; taking part in cross-country skiing or snow shoeing; or participating in other active winter sports. Periodic rests also help avoid overheating.

Food & Water

Melting snow in a pot to get water may cause the pot to burn through or may scorch the snow, giving the water a disagreeable taste. Prevent this by adding a cup or two of water in the bottom of the pot before putting in the snow to melt.

Small liquid-fuel stoves are much better for cooking in winter than fires, which are difficult to build with wet wood. Gathering wood that is frozen to the ground also can be difficult, if not impossible. A pressure/pump-type gas stove is essential in winter.

Sleep & Shelter

Always allow ample time to make camp in winter, especially if you plan to build snow shelters.

Pulling a load over the snow on a sled or toboggan is generally easier than carrying it in a backpack.

Snow is a terrific insulator. Snow shelters are much warmer than tents for winter camping because they retain heat and keep out the cold wind. If you have adequate time for building snow shelters, you will spend a much more comfortable night sleeping in them than in a tent.

Winter Gear & Clothing Hints

There is no such thing as bad weather, just poor choices in clothing.

Everything takes longer and moves slower in cold and snow. Equipment is more bulky and heavy. The days are shorter and much of your camp activities will take place in the dark. Patience is not simply a virtue at this point, it is fundamental. Practice setting up your tent and lighting stove before you go to winter camp.

Keep your camera inside your shirt or your jacket so it stays warm enough to operate, Film should also be carried close to your body because it tens to get brittle when cold. Wind film slowly to avoid tearing.

Keep flashlight batteries inside a pocket. What may seem like dead batteries could be just cold batteries.

Carry a small whiskbroom to brush off boots and gaiters, and a sponge to mop up damp spots.

Keep clothing in stuff sacks so they don't accumulate snow while opening and closing your pack.

If you can, tie a string to your flashlight and keep around your neck. Headlamps are best as they allow your hands to be free.

Whenever you take off hats and mittens, always stow them in a secure place. Things will dry out in the winter, believe it or not. It's a process called sublimation. The dampness turns to ice and evaporates from ice. Damp things should be hung on dry surfaces such as tarp lines.

Personal organization is crucial during the winter. You must know exactly where each and every single bit of your gear is at all times.

Never set things in the snow. It is possible to drop a lit flashlight in the snow and never find it again.

Avoid metal cups (except for double-wall thermal), metal whistles etc. which will adhere to warm mouth tissue when cooled to winter's subzero temperatures.

Practice working with all of your equipment with mittens on and modify any equipment that can only operated with bare hands.

In winter camping there is very little margin for mistakes. If you forget to waterproof your boots and get wet feet, you will need to take action immediately to prevent frozen toes or feet.

Be careful around an open fire. Winter clothes and boots, which provide good insulation from the cold, will also stop you from feeling the heat until the boots, mittens etc. are burning or melted.

Avoid cotton like the plaque. It becomes a frozen lump by the second morning.

Cotton kills because once it gets wet, it takes forever to dry in winter, leaving the door wide open for hypothermia. This is an essentially useless winter fabric, so leave the jeans at home. One caveat: bring a cotton bandana to clean your sunglasses.

Black is the best color for winter clothing because it absorbs solar radiation, keeping you warmer and enabling the material to dry quickly.

Don't overdress. Layers work best because you can take something off when you're sweating or add layers if you're chilly. Choose garments with zippers because they increase airflow and reduce sweating.

Bunting or fleece jackets are useless in most conditions without a windshell.

When you take off your gloves or mittens, put them inside your coat next to your body, rather than down on the snow.

The best way to keep your feet warm is to keep the rest of your body well covered. If your feet are cold put on a hat.

If your feet are cold, don't put on extra socks if your boots are already snug. Constricted toes are colder than those with room to wiggle.

Carry extra plastic bags (like those used for newspapers) to be used as tube sock vapor barriers directly next to the skin. Use these for Scouts with cold feet wearing boots too small for an extra pair of socks.

Winter Camping Equipment

SIMPLE EQUIPMENT LIST FOR YOUR FIRST WINTER TENT CAMPOUT

____ BACKPACK (and/or large Sports Equipment Bag, and/or Duffel Bag). Line it with a Lawn Bag first, to keep contents dry.

____ WARM JACKET & SCARF.

____ SNOW PANTS (available at thrift stores for $3-$5).

____ 2 EXTRA PAIRS OF PANTS

____ 2 WOOL SWEATERS, or POLAR FLEECE SWEATSHIRTS (about $3 at Thrift Stores).

____ 2 LONG SLEEVE SHIRTS (Wool or synthetic fiber for good insulating quality & quick drying - $3 at thrift stores).

____ 2 SETS of LONG UNDERWEAR (if buying new, look for 100% synthetic fabric, NOT "waffle pattern" cotton blend).

____ 2 extra sets of UNDERWEAR

____ 2 extra pair HEAVY NON-COTTON HIKING SOCKS & Liners (Make sure your boots are NOT TIGHT!).

____ STURDY, INSULATED WINTER BOOTS (Rubber is much better than leather. Leather will freeze at night).

____ PLASTIC BAGS (newspaper or bread wrappers, or plastic grocery bags to go under socks in case of wet leather boots).

____ WINTER GLOVES or MITTENS (As many as you own and can borrow!)

____ 2 WARM HATS (One for Sleeping ONLY-Sleeping hat should be designed to stay on at night).

____ WINTER SLEEPING BAG (or 2 regular Sleeping Bags stuffed one inside the other; or a regular Bag AND 2-3 Blankets)

____ ADDITIONAL SWEAT PANTS & SWEAT SHIRT (for sleeping only! Change ALL of your clothes, including your long underwear, inside your sleeping bag when you go to bed).

____ TWO (2) CLOSED-CELL FOAM SLEEPING PADS (or about 2-3" of newspapers under your sleeping bag).

____ "BLUE" 5'X7' TARP or other Plastic Ground Sheet.

____ GOOD QUALITY WHISTLE on neck chain.

____ POCKETKNIFE (SMALL Swiss Army Knife on neck chain, $13. Never buy a knife made in China!)

____ MESS-KIT (BOWL, CUP, FORK, SPOON, PLATE -- heavy-duty plastic is warmer than metal).

____ 2 ONE-QUART WATER BOTTLES, filled ("Nalgene" Bottles can be filled with hot water for inside sleeping bag).

____ FLASHLIGHT & EXTRA BATTERIES.

____ SMALL FIRST AID KIT (You can make your own: BSA Handbook, Page 289).

____ PEN, PENCIL, SMALL NOTEBOOK, BSA HANDBOOK (No, you can't borrow ours).

____ COMPASS with a BASEPLATE, in a Zip-Lock bag (with map, if you have one).

____ MATCHES in a Zip-Lock bag.

____ CLEAN-UP KIT (Small Hand Soap, Small Toothpaste, Toothbrush, Comb, Floss, Fast-Drying Camp Towel).

____ TOILET PAPER (Half a roll in a Zip-Lock bag).

____ SLIPPERS or MOCCASINS (To wear inside cabin)

Winter Sleeping-System Hints

Supper calories burn quickly on a cold evening. To avoid going to bed with an empty stomach and a chill, snack on high-calorie foods such as cheese, hard salami or gorp before turning in.

Don't sleep in the clothes you've worn all day. They'll be damp and provide little insulation. Pack an extra pair of long underwear and socks for the night. Sleeping nude is better than wearing damp clothes.

To help keep boots from freezing at night, put them in your stove or cook-kit bag and place under the foot of your sleeping bag.

Contact lenses and solutions can go in your sleeping bag to keep them from freezing.

Always wear a hat to bed. A balaclava is best because it covers your neck and ears.

Take along an extra foam pad for insulation under your sleeping bag.

To help keep cold air out of your sleeping bag when you roll over, take your down vest, sweater, or pile coat and lay it across your neck and chest, tuck it in so it acts like a collar.

To reduce frost buildup while you're sleeping, leave the tent door partially unzipped for airflow. Some condensation will inevitably build up inside, so after you crawl out in the morning, open the doors, let the wet tent freeze, then shake off the frost before packing.

Sleep with boot liner, insoles, and socks inside your bag. Some people even sleep with their boots in their bag or place their boots under their feet between the bag and sleeping bag.

Keep your nose and mouth out of your sleeping bag because your breathing will dampen the inside of your sleeping bag.

Turn your water bottles upside down before going to bed. If water freezes, the ice will be on the bottom of the bottle when it's turned upright. If it's extremely cold, cuddle up with the bottles (filled with hot water) in your sleeping bag, but make sure they don't leak.

When going to bed everything should be put back in packs, NOTHING IS LEFT OUT. Nothing is more unpleasant than feeling around in four inches of new snow for cups, spoons, stoves, etc.

Sleep on extra clothes. Pad your contact points with extra padding. Shoulders and hips deserve all the help they can get preserving heat.

Put water bottle in your bag with you at night. It keeps it from freezing and provides needed relief from "Sahara Throat" in the morning. Also it provides starter water for melting snow for breakfast.

Turn your sleeping bag stuff sack inside out and put your boots in it. Then place them under your sleeping bag, behind your knees, on top of your pad. In this way, they won't freeze by morning.

Go to the bathroom whenever you have to or else you are just keeping waste warm for no reason. Just before going to bed go to the bathroom and get up during the night too, if the matter comes to.

When going to bed visualize or think out exactly what you are going to do and where everything is that you'll need for the next morning. This will add tremendously to efficiency.

Keep a dry wool hat in your sleeping bag to wear at night. You lose 40% of your heat through your head.

Snow can make the finest of beds if it's prepared properly. When arriving at a campsite, remove your pack or sled and, keeping on snowshoes or skis, stomp down a platform larger than your tent. Crisscross the tent site in a grid pattern. Then let the site harden, which usually takes 30 to 45 minutes. When you finally move in, you'll have a firm surface on which to sleep.

You've eaten a warm and calorie-laden meal, drunk a big mug of tea, and are feeling toasty. Then you crawl into a sleeping bag that may be 101 F or 20' F below zero. A lot of your body beat will now be lost heating your bag. Instead of losing calories in this way, boil a pot of water while dinner is being eaten and pour the boiling water into Nalgene water bottles. Screw the lids on tightly, check for leaks then put them in your sleeping bag.

Reliving yourself at night means, at the least, rising from your bag to aim out the tent door. Women have it even harder. A more civil way of handling the business is to carry a one liter, wide mouth Nalgene bottle marked with a circle of duct tape so you can feel it in the dark and thus distinguish it from your water bottle. Urinate into the bottle, which with a little bit of practice can be done without getting out of the comfort of your sleeping bag.

Keep your tent well ventilated, with the doors and windows open at least 3" to prevent a buildup of frost on the walls and ceiling from exhaled moisture.

Don't sleep with your head completely inside your sleeping bag. Your breath is moist and will collect inside the bag to make you damp and cold. Wear a hooded sweatshirt or stocking cap and leave your face out of the bag. If it is very cold, wear a knit face mask.

Pack down the snow in the area where you will pitch your tent to avoid an uneven surface under your sleeping pad. Never clear away the snow, as the ground underneath will begin to thaw and become muddy.

To stay warm at night, put on dry clothes from the skin out. You may feel warm and dry in the clothes you have worn all day, but they are full of moisture which will cool down as you sleep and you will wake up cold and damp.

Air mattresses provide no insulation from the cold ground. Use closed cell foam pad or Thermarest pad instead.