



January 2005 Capital District Roundtable

KLONDIKE Preparation

Chris D Garvin

Roundtable Commissioner



OUTLINE

- n Introduction
- n Shelters
- n Pioneering
- n Fire
- n First Aid
- n Questions



SHELTERS



Shelters

- n Types

- n Tents

- n Quinzees

- n Snow Trench

- n Snow Cave

- n Snow Tree Pit

- n Igloo



Shelters: Tents

- n The key factors are: Strength, Ability to Shed Snow, Room, and Rain fly Strength
- n To withstand both wind and snow. Use a tent specifically rated to be a 4-season tent. These tents typically have stronger poles to withstand snow loads.
- n The tent must have a roof line that allows snow to fall off. Otherwise the tent will load up and the weight will cause it to collapse. (4-season tents are designed this way)
- n You will need a lot of internal space for all the bulky gear you will carry. Also you may get snowed in and need to stay in the tent for an extended period of time.
- n The tent must have a rain fly. Having a breathable inner tent wall with a waterproof fly outside helps reduce condensation in the tent. It also helps to provide better insulation by increasing the unmoving air space layers. Typically a tent will be 10-20 degrees warmer than the outside air. Free standing or dome tents are recommended because they shed snow well and they provide efficient interior space.

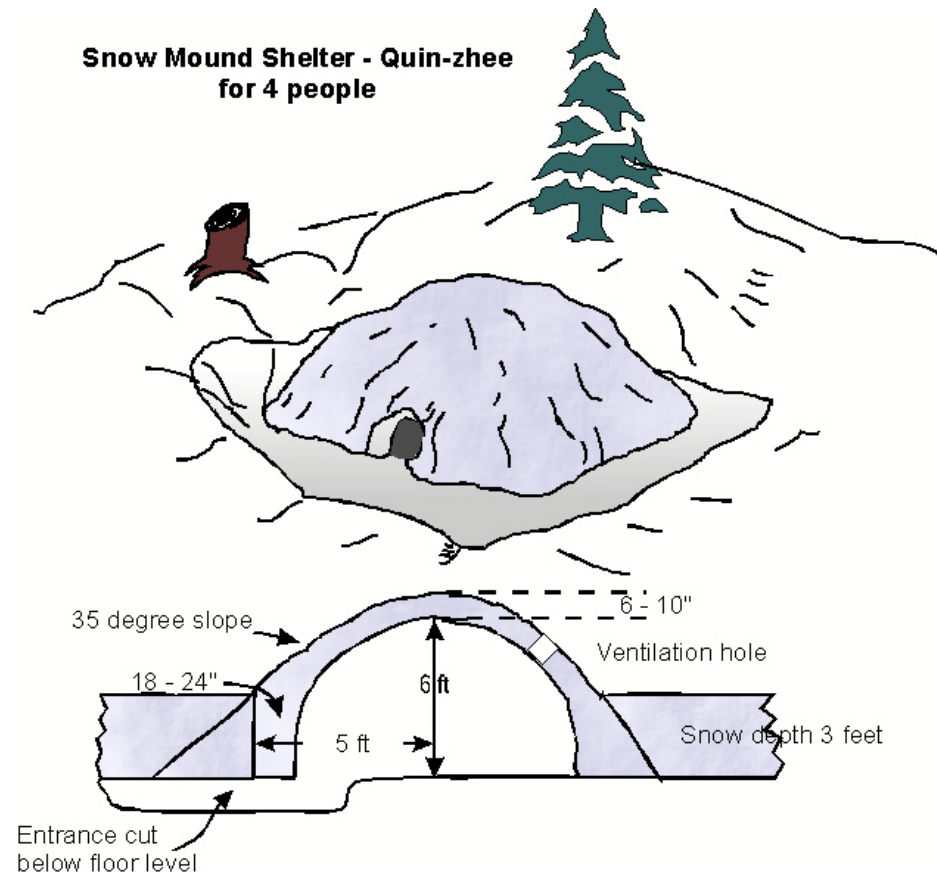


Shelters: Tents

- n Many dome tents are designed for three season use only and the stitching and the poles are not designed to take the weight of snow
- n Condensation: During the night your breathing pumps a great deal of humid air into the tent. This air rises and hits the inner tent wall where the moisture condenses into ice. These fine particles can get all over you and your gear. It is best to brush the ice particles off the tent in the morning and sweep them outside. A frost liner, hung inside the tent, allows the moisture to pass through and provides a layer between you and the ice.

Shelters: Quinzee

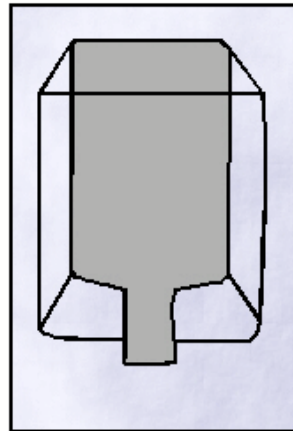
**Snow Mound Shelter - Quin-zhee
for 4 people**



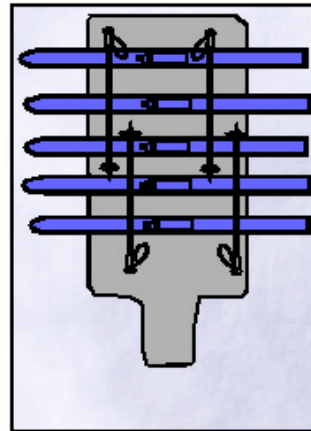
Shelters: Snow Trench

Snow Trench Shelter

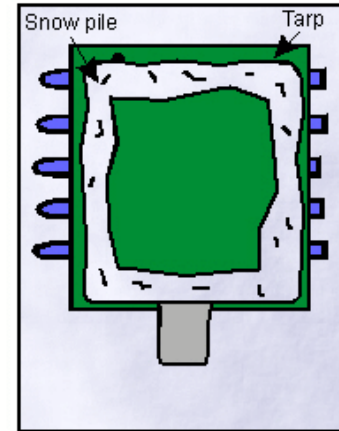
Top view



Dig a trench in the snow. Beveling the walls as you go down makes a bigger sleeping area with a smaller roof opening to cover.

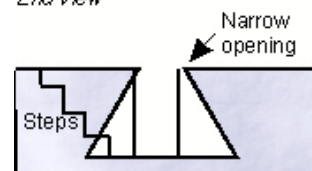


Skis and poles are laid across the trench.

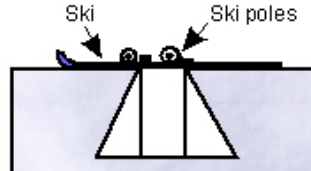


Tarp placed over skis. Snow Piled around perimeter.

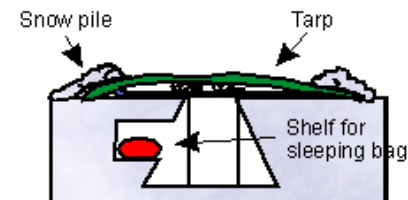
End view



Steps
Narrow opening

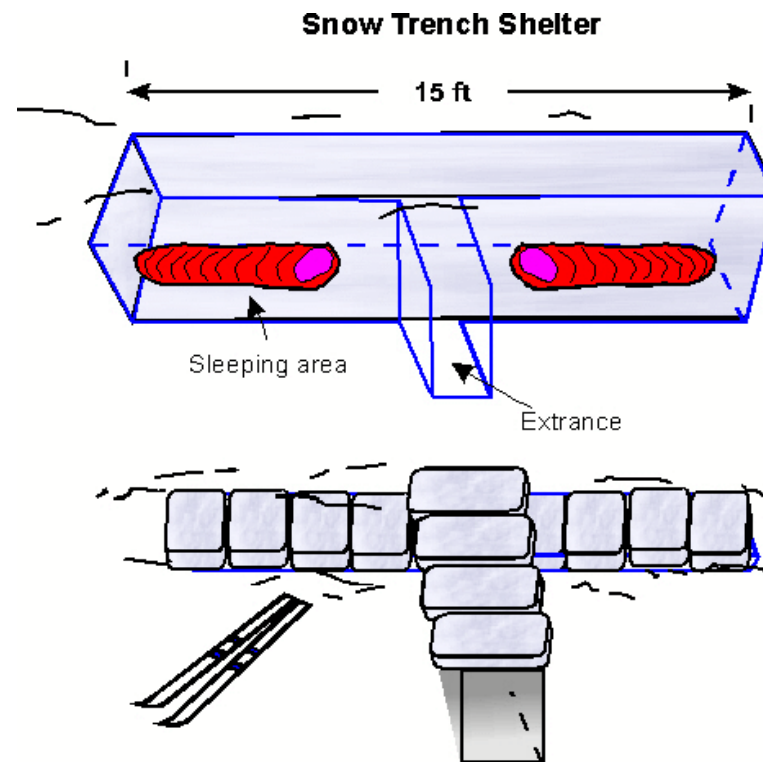


Ski
Ski poles



Snow pile
Tarp
Shelf for sleeping bag

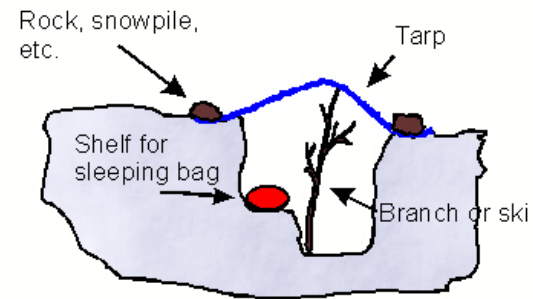
Shelters: Snow Trench



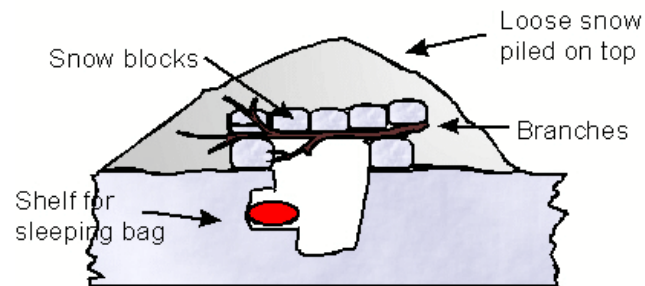
Dig blocks out of the snow to create a T-shaped trench.
Shape the blocks to create the roof.

Shelters: Snow Trench

Snow Trench Shelter



Snow Mound Trench Shelter

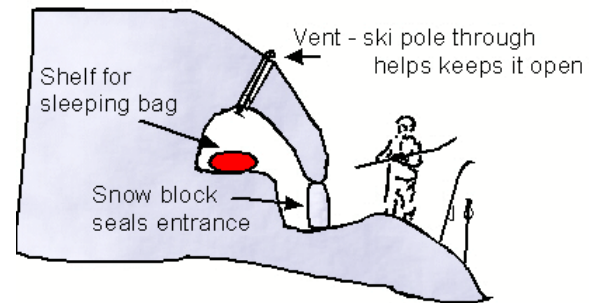


Shelters: Snow Tree Pit

Snow cave digging under tree branches

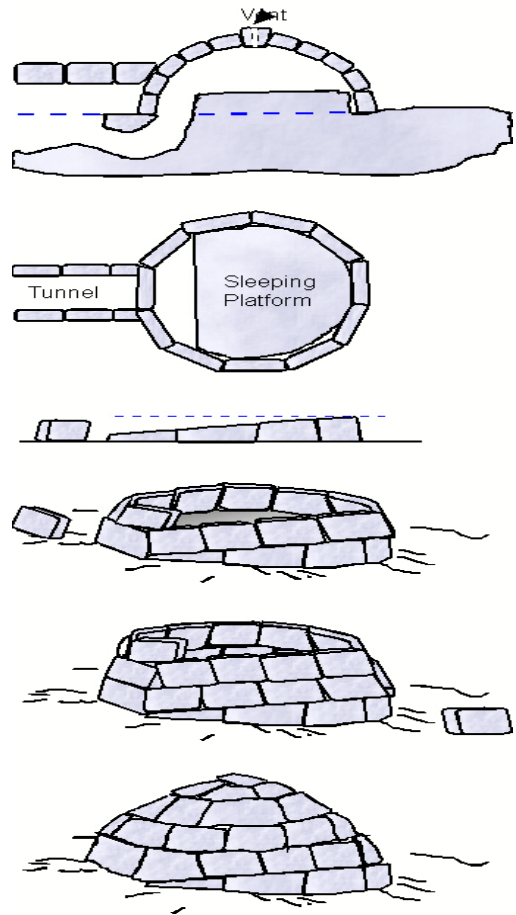


Snow cave on a slope



Shelters: Igloo

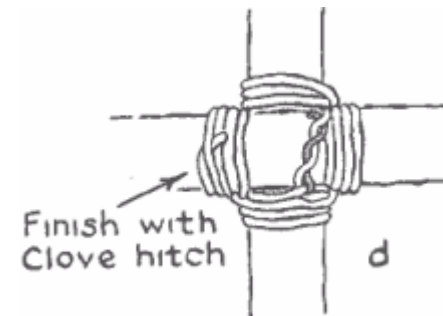
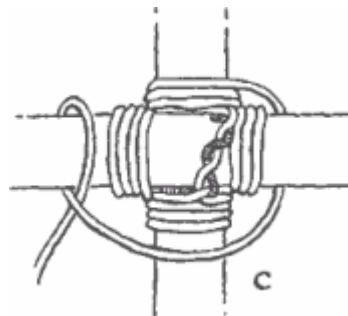
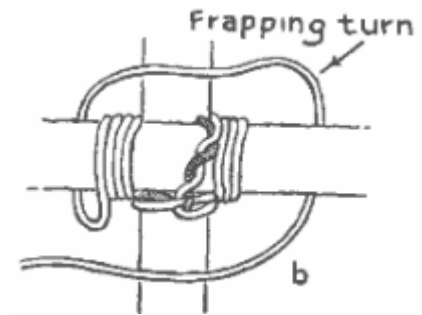
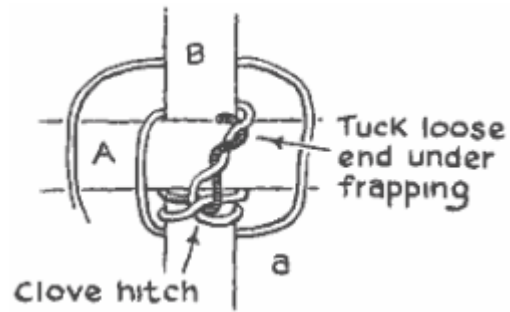
Igloo Construction



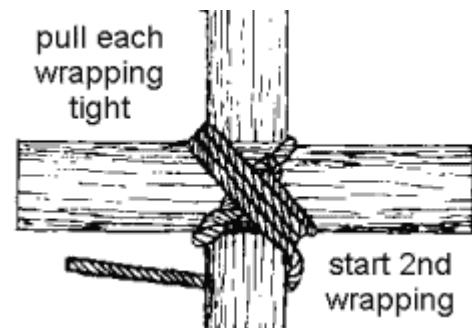
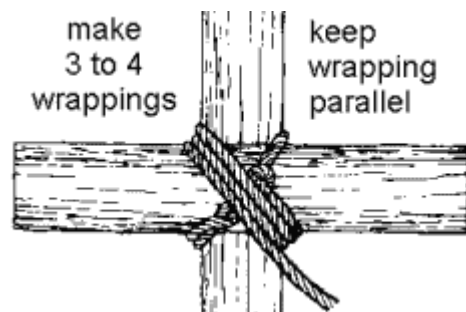
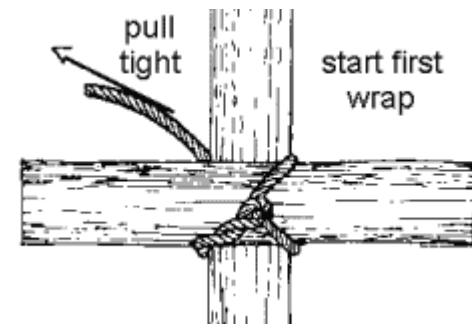
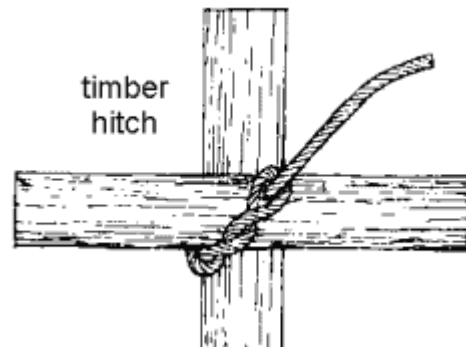


PIONEERING

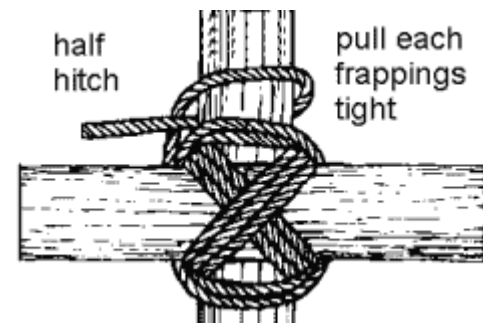
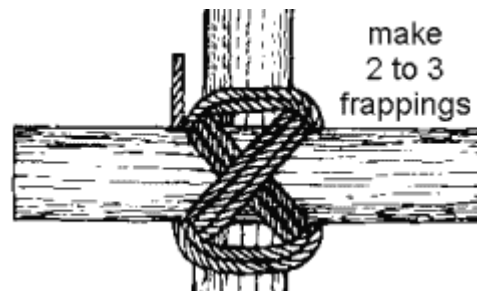
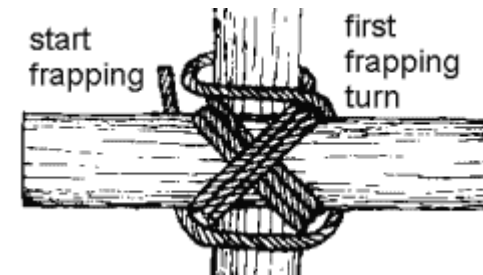
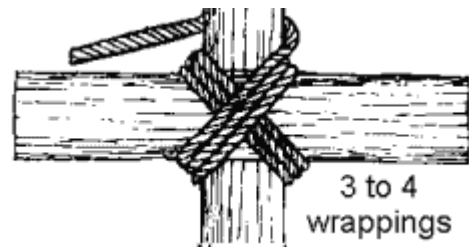
Pioneering: Square Lashing

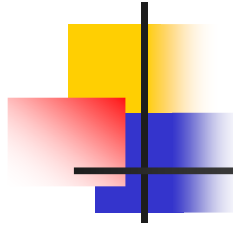


Pioneering: Diagonal Lashing

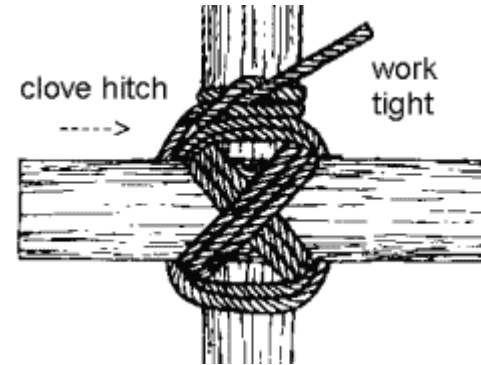
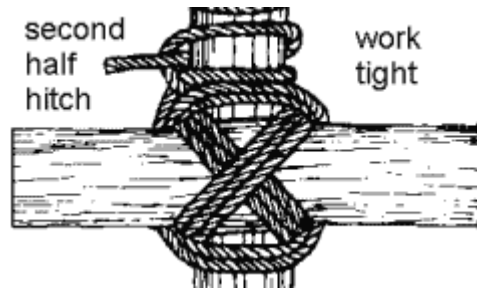


Pioneering: Diagonal Lashing

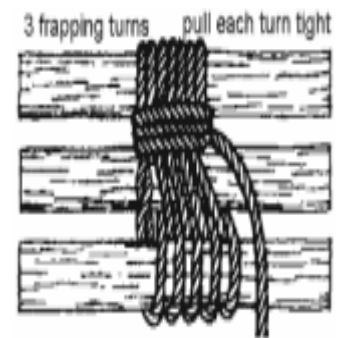
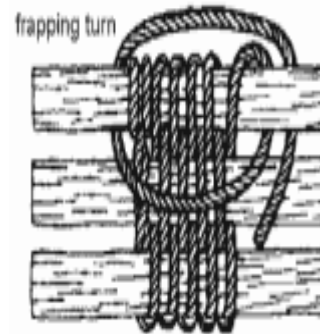
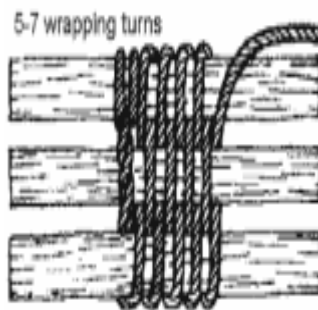
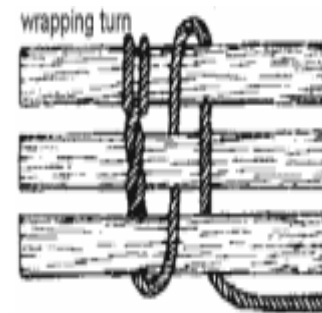
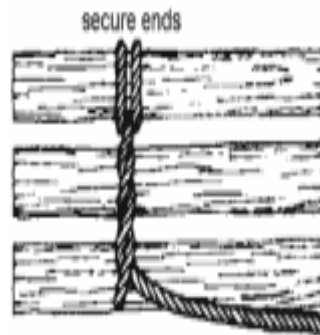
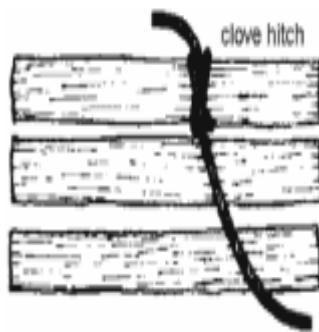




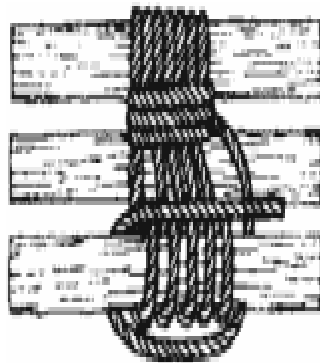
Pioneering: Diagonal Lashing



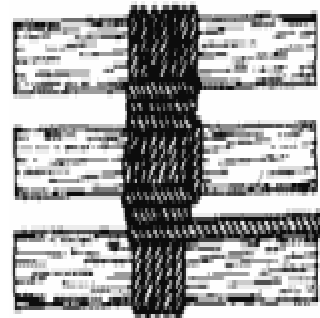
Pioneering: Tripod Lashing



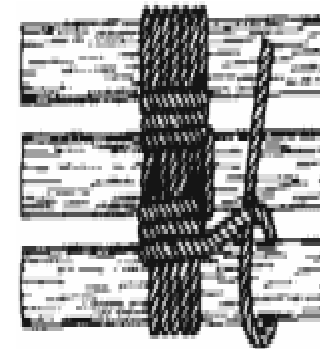
Pioneering: Tripod Lashing



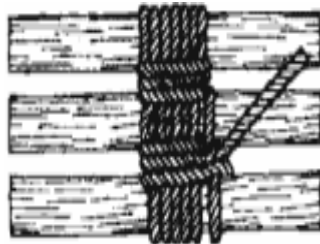
start second frapping



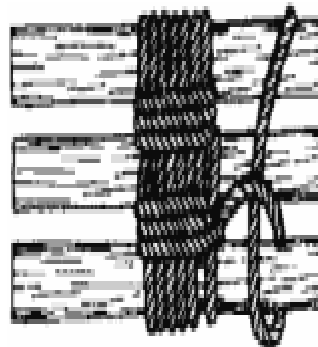
3 frapping turns



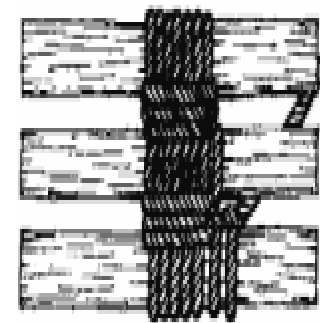
first half hitch of clove hitch



work half hitch tight

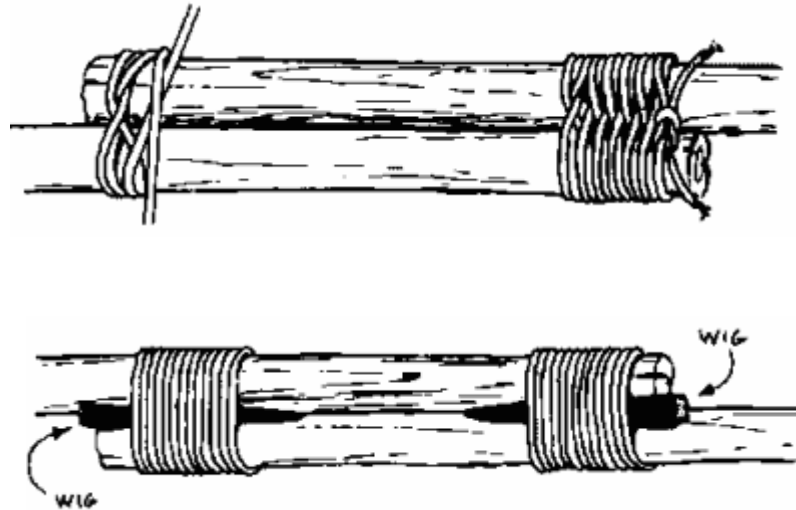


second half hitch of clove hitch

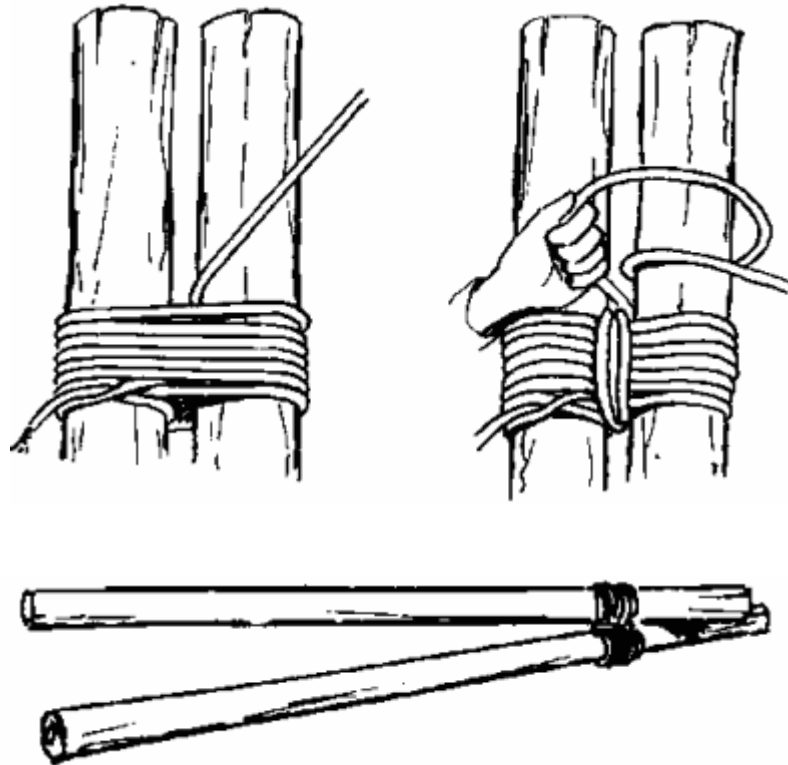


work clove hitch tight

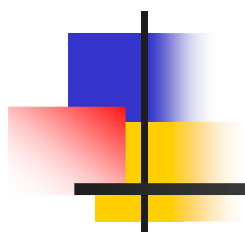
Pioneering: Round Lashing



Pioneering: Shear Lashing



FIRE





Fire: Fire Starters

Matches Kitchen size are best. Waterproof with paraffin, nail polish, or shellac cut 50- 50 with alcohol.	Flint and Steel Any stone containing quartz is good. For steel, use back of knife blade or file with burr ground off.	Fire By Friction Cottonwood, cedar, elm, or basswood for board and spindle.
Burning Glass Magnifying glass or lens of binoculars or camera.	Cotton Balls Dipped in petroleum jelly	NO Acorns, Shale (Rock), Wet Rocks, Aerosol Cans



Fire: Tinder

Grass Fine, dry – up off the ground.	Weed Tops Goldenrod, aster, etc.	Dry Leaves Still on the tree
Fine Twigs “Squaw Wood” from standing trees.	Bark Cedar or birch or palmetto – picked from dead standing trees with your fingernails.	Bird Nests From last season
“Fat” Pine Full of pitch	Fine Shavings Of Dry wood	Paper, Candle, Paraffin and Paper or String
Commercial Starters Sterno Meta Tablets Flares	NO Mouse Nests. Can carry <i>Hanta Virus</i>	



Fire: Kindling

Twigs

Dead, dry "squaw wood"
from standing trees.

Weed Stems

Medium and heavy stems.

Split Wood

Always good as long as it is:

1. Dry
2. Split fine enough
3. More than you think you need.

"Squaw Wood"

The fine twigs and
branches that a squaw can
get from a standing tree
without using any tool
other than her hand.



Fire: Fuel

<p>Wood Any size. Better split it if your log is more than 3 inches in diameter.</p>	<p>Charcoal In natural sticks or pressed briquettes.</p>
<p>Coal Soft or hard</p>	



FIRST AID



Cold Weather First Aid

- n Dehydration
- n Hypothermia
- n Frostbite
- n Snow Blindness
- n Loss Of Body Heat
- n Types Of Cold
- n Carbon Monoxide Poisoning
- n Chilblains

Cold Weather First Aid

Dehydration

n **Excessive loss of body water. Impairs the ability to reason, so the victim may not react properly.**

n **Prevention:**

- n **Drink at least 2 quarts of water a day.**
- n **Avoid dehydrating foods (high protein) and fluids (coffee, caffeine).**
- n **Increase fluid intake at first signs of darker yellow urine.**

n **Symptoms:**

1 to 5 % deficiency Increased pulse rate Nausea and loss of appetite Dark urine or constipation Irritability, fatigue Thirst	6 to 10 % deficiency Headache, dizziness Labored breathing Tingling Absence of salivation Inability to walk Cyanosis (bluish or grayish skin color)	11 to 20 % deficiency Swollen tongue, inability to swallow Dim vision, deafness Shriveled, numb skin Painful urination Delirium, unconsciousness and death
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n **Treatment:**

- n **Mild cases - drink liquids, keep warm.**
- n **More severe cases require professional medical treatment.**

Cold Weather First Aid

Hypothermia

ⁿ Lowering of the inner core temperature of the body. Can and usually does happen above freezing. The victim may not recognize the symptoms and may not be able to think clearly enough to react. Injury or death may result.

Predisposing Conditions:

Poor physical condition.
Inadequate nutrition and water intake.
Thin build.
Non-protective clothing.
Getting wet.
Inadequate protection from wind, rain and snow.
Exhaustion.

Symptoms:

Loss of ability to reason. Shivering.
Slowing, drowsiness, fatigue. Stumbling.
Thickness of speech. Amnesia.
Irrationality, poor judgment. Hallucinations.
Cyanosis (blueness of skin). Dilation of pupils of eyes.
Decreased heart and respiration rate.
Stupor.

Treatment:

Shelter the victim from wind and weather.
Insulate the victim from the ground.
Change wet clothing.
Put on windproof, waterproof gear.
Increase exercise, if possible.
Put in a pre-warmed sleeping bag.
Give hot drinks, followed by candy or other high-sugar foods.
Apply external heat; hot stones, hot canteens.
Huddle for body heat from others.
Place victim in a tub of 105° F water. Never above 110° F.

Prevention:

Keep rested, maintain good nutrition.
Consume plenty of high-energy food.
Use proper clothing.
Make camp early if tired, injured or lost.
Get plenty of exercise. Don't sit around much.
Appoint an experienced person to watch the group for signs.
Take immediate corrective action for any signs.

Cold Weather First Aid

Frostbite

n **Tissue injury involving the actual freezing of the skin and underlying tissues. Recovery is slow, severe frostbite can lead to gangrene. Once exposed the victim will be predisposed toward frostbite in the future.**

n **Predisposing Conditions:**

- n Prolonged exposure to temperatures 32° F or below.
- n Brief exposure at extremely low temperatures, -25° F and below.
- n Exposed body parts
- n Restriction of circulation.
- n Fatigue, poor nutrition, low liquid intake, poor physical condition.
- n Previous case of frostbite or other cold injury.

n **Symptoms:**

First Degree (Frostnip) Redness, pain, burning, stinging or prickly sensation. Pain disappears and there is a sudden blanching of the skin. The skin may look mottled. Skin is firm to the touch, but resilient underneath. On thawing, there is aching pain or brownness. The skin may peel off, and the part may remain cold for some time.	Second Degree (Superficial Frostbite, Frostbite) No pain, the part may feel dead. Numbness, hard to move the part. Tissue and layers underneath are hard to the touch. After thawing (takes 3 to 20 days) pain, large blisters, sweating. Black or discolored skin sloughs off, leaving tender new skin.	Third degree (Severe Frostbite) Full thickness of the skin is involved. After thawing, pain continues for 2 to 5 weeks.	Fourth degree (Severe Frostbite) Skin and bone are frozen. Swelling and sweating occur. Gangrene may develop, amputation may be necessary.
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Cold Weather First Aid



Frostbite

n

Treatment:

- n **Do not rub affected area with snow. Hold it over fire, or use cold water to thaw it.**
- n **Exercise the affected area to promote blood circulation.**
- n **Use any warmth available to thaw area.**
- n **Do not attempt to thaw frostbitten limbs in the field. It is less harmful for the victim to walk out on a frostbitten limb than to thaw it in the field. Thawing only risks additional injury and the victim will be in too much pain to walk.**
- n **Check for hypothermia.**

n

Prevention:

- n **Proper clothing.**
- n **Good nutrition, drink water, maintain core temperature.**
- n **Use buddy system to check face, nose, and ears.**
- n **Immediate treatment of minor symptoms.**

Cold Weather First Aid

Snow Blindness

- n **Inflammation of the eye caused by exposure to reflected ultraviolet rays when the sun is shining brightly on an expanse of snow.**

- n **Symptoms:**
 - n Sensation of grit in the eyes, made worse by eye movement, watering, redness, headache, and increased pain on exposure to light.

- n **Treatment:**
 - n Blindfold the victim and get rest. Further exposure should be avoided. If unavoidable, the eyes should be protected with dark bandages or the darkest sunglasses. The condition heals in a few days without permanent damage once exposure is stopped.

- n **Prevention:**
 - n Wear sunglasses when any danger is present. Do not wait for discomfort to begin.

Cold Weather First Aid

Loss of Body Heat

n The body's process for maintaining an even temperature is called **Homeostasis**. The arms and legs are used as a radiator to remove excess heat from the body. This process dilates the blood vessels, allowing more blood to flow to the skin surfaces. When the body temperature drops, these blood vessels constrict, decreasing blood flow, and thereby, heat loss. This is why hands and feet get numb when cold, and why they're particularly vulnerable to frostbite.

n **Since your brain needs oxygen to function, your body can't cut off the flow of blood to your head in order to conserve heat. Consequently, much of your body heat can be lost through an uncovered head and neck.**

n **Radiation. (55%)**

A major source of heat loss. Heat is lost directly from exposed skin and the head. The head may lose up to one-half of the body's total heat production at 40 degrees F, and up to three-quarters at 5 degrees F.

n **Conduction. (15% w/convection)**

Heat is lost through skin contact with cold objects, primarily the hands, and wet or tight clothing. Handling gasoline, and other super-cooled liquids, at low temperatures is especially dangerous.

n **Convection**

Heat is lost from the wind carrying away heat from the surface of the skin. This includes wind-chill effects.

n **Evaporation (21%)**

Loss from evaporation of sweat, moisture from the skin and lungs produces substantial heat loss. There is little that can be done about this. We need to allow for this by using breathable fabrics to allow this moisture to pass out freely.

n **Respiration (2-9%)**

Heat lost from inhaling cold air and exhaling warm air.

Cold Weather First Aid

Types of Cold

n **Wet cold: 50° F to 14° F**

- n The most dangerous. Wide temperature variations from melting during the day to freezing at night makes proper dressing difficult, and important. Damp conditions from melting snow or rain makes keeping dry difficult. Hypothermia and dehydration are the biggest concerns in these conditions, although frostbite can occur at the lower end of the temperature range.

n **Dry cold: 14° F to -20° F**

- n Ground is frozen and snow is dry and crystallized. Strong winds cause the most concern with keeping warm. Extra clothing layers and wind-proof outer garments should be added.

n **Arctic cold: below -20° F**

- n Requires the most insulation and wind-proofing. Many materials change physical properties, becoming brittle. Only for the most experienced campers. Frostbite is a major concern in these conditions.

Cold Weather First Aid

Carbon Monoxide Poisoning

n **Carbon monoxide (CO) is a colorless, odorless, poisonous gas. It is produced by the incomplete burning of solid, liquid, and gaseous fuels. Appliances fueled with natural gas, liquefied petroleum (LP gas), oil, kerosene, coal, or wood may produce CO. Burning charcoal produces CO. Running cars produce CO.**

n **Symptoms:**

n Headache	Fatigue
n Shortness of breath	Nausea
n Dizziness	Disorientation

n **Treatment:**

- n **Get the victim fresh air immediately**
- n **Contact a doctor for a proper diagnosis**
- n **After caring for the victim or have someone else remove or turn off the fuel burning source (candle, stove, heater, etc.) from the enclosed space.**

n **Prevention:**

- n **Never have an open flame inside a tent.**
- n **Never use portable fuel-burning camping equipment inside a tent or other enclosed space.**
- n **Never burn charcoal inside a tent or other enclosed space.**
- n **Never service fuel-burning camping equipment without proper knowledge, skills, and tools. Always refer to the owner's manual when performing minor adjustments or servicing fuel-burning equipment.**

January 2005

Capital District Roundtable

QUESTIONS?