



## AY HONORS – BACKPACKING

SKILL LEVEL 2 - ORIGINAL HONOR 1986 - RECREATION GENERAL CONFERENCE

### 1. DISCUSS WITH YOUR INSTRUCTOR THE MEANING OF THE MOTTO: "TAKE NOTHING BUT PICTURES AND LEAVE NOTHING BUT FOOTPRINTS."

"Take nothing but pictures, leave nothing but footprints" is pretty self-explanatory. It means you do not disturb nature while you are out enjoying it. If you see a pretty rock, leave it there for someone else to enjoy. If you eat a piece of candy on the trail, don't toss the wrapper — take it with you.

There are a few exceptions to both these rules. If you see trash, by all means, take it. Throw it in the trash when you get to a proper trash receptacle. Also be aware that footprints are not always harmless. Many tundra plants that take years to grow can be destroyed by a single footprint. Stay on the trail.

One of the most important ways people leave their mark on the land is by building a campfire. For "no trace" camping, bring a camp stove. Unfortunately, the campfire is one of the primary attractions for many people, so it is not easy to follow this advice. If your campsite has a fire ring or an existing fire pit, use that. If it does not and you *must* have a campfire, lay a small tarp on the ground and cover it with six to eight inches of mineral sand. Mineral sand is sand containing no organic material, and can be found on a beach or where a large tree has fallen over and raised a root wad. The sand must be piled deep so the heat does not affect the tarp beneath. Stop putting new fuel on the fire well before you are ready to put it out, and push in the ends of sticks that have not yet burned. Allow them to burn down to white ash. When you are ready to leave, douse the fire well, and spread the ashes over a wide area. Return the sand to the place where you found it and pack up your tarp.

### 2. KNOW THE ESSENTIALS OF PROPER CLOTHING, SHOES, AND RAIN GEAR TO USE IN BACKPACKING.

#### **Warm Weather Clothing**

Keep in mind that the weather can change suddenly though. Just because it is warm when you begin your outing does not mean it will be warm the whole time. If there is a chance that the weather will turn cold, take along some cold weather gear as well. Check an almanac to see how cold it can get during the time you are planning to be out.

Here is a list of clothing appropriate for a warm-weather outing.

- Thick socks
- Jeans
- Light Shirt (short sleeve)
- Light Shirt (long sleeve)
- Hat with a wide brim
- Boots

**Cold Weather Clothing** Remember to dress in layers. This will allow you to control your temperature better. In cold weather, you do not want to sweat, because that will soak your clothing and chill you. If you find yourself working up a sweat, remove a layer of clothing, or open a zipper. Rely on wool rather than on cotton, because wool stays warm even when wet. There is a popular saying among experienced

outdoorsmen that "Cotton kills." This is because when cotton gets wet, it steals the body's heat which can lead to hypothermia and death. Your outer layer should be wind-proof, as this greatly increases the warmth of your clothing. Here is a list:

- Thermal Underwear
- Light shirts (polyester or some other synthetic)
- Heavy Shirts
- Wool Sweater
- Wind Breaker
- Fleece Pants (synthetic)
- Nylon Pants (as the outside layer) or snow pants
- Overcoat
- Wool Socks
- Boots
- Warm Hat

**Sleepwear** For comfortable sleeping and for modesty on overnight trips, bring pajamas or a sweat suit. In many places where it is warm during the day it gets cold at night, so be prepared.

**Rain Gear** Be ready for bad weather on your backpacking trip by bringing along a poncho and rain pants. In a pinch, you can use a garbage bag as a raincoat by cutting a hole in the bottom, turning it over, and poking your head through the hole. A slit along each seam on the side will make arm holes. It will not cover your head like that, but it will keep the rest of you dry.

### 3. KNOW THE PRINCIPLES IN SELECTING A GOOD QUALITY BACKPACK. IN EMERGENCY, WHAT MIGHT BE USED IN PLACE OF A BACKPACK?

There are a lot of products on the market these days that are called "backpacks," but don't be fooled. A backpack suited for backpacking will have a hip strap on it that fastens around the hips. Most of the weight of the backpack will thus be carried on your hips. The shoulder straps will carry a small percentage of the weight as well, but they are really intended to keep the backpack from tipping off. If you find that you are carrying most the weight on your shoulders, you need to adjust the backpack to shift the weight to your hips. You will be able to walk much farther distances in greater comfort that way.

Backpacks come in two basic designs: the **Internal Frame** backpack, and the **External Frame** backpack.

The external frame backpack has a rigid frame made from aluminum, plastic, or both. The pack itself attaches to the frame, and the frame is attached to the body via shoulder and hip straps. The frame holds the pack away from the back so that air may circulate back there, making an external frame backpack cooler to carry. The downside to an external frame backpack is that the body tends to twist and flex as a hiker moves, and the frame resists this. Some external frame backpack takes this into account, and provide a frame that will flex. The main measure of comfort on an external frame backpack is the degree to which it flexes.

The internal frame backpack drapes over the back. It gets its structure from the gear placed inside it. This allows the internal frame backpack to flex and move as the body does, making it generally more comfortable to carry. Furthermore, the internal frame backpack lies against the hikers back. This allows it to distribute its weight over a greater area, but it also prevents air circulation, making it hotter to wear. The internal frame backpack uses foam in the straps to add even more comfort. There are two basic types of foam: open-cell foam, and closed-cell foam. Open cell foam is highly compressible. While this may add comfort in some places, it should not be used in the straps. In the straps, the foam compresses too much, leaving the webbing to dig into the shoulders. Closed cell foam compresses much less than open-cell foam, and is therefore preferred in the straps. You can easily tell the difference by squeezing the padding. If it compresses to about a quarter its original thickness, it is open-cell foam.

Whether you choose an external frame backpack or an internal frame backpack, the next thing to consider is the material from which the pack itself is made. Avoid cotton. It is cheap, but it is also not

waterproof. If you set a cotton pack on the wet ground, you will transfer the moisture from the ground to your gear. Some packs made of Kevlar are appearing on the market, and those should be avoided as well. Though Kevlar is known for its puncture resistance (think bullet-proof vests), it does not offer much in the way of abrasion resistance. Your pack is far more likely to be subjected to abrasion than puncture. Nylon is a far better choice than either of these, and of course, it comes in a variety of configurations. All of them are acceptable, but rip-stop is probably the best suited to the job.

Look for 8 to 10 stitches per inch in the seams. More than 10 stitches per inch decreases the strength of the cloth, and with fewer than 8, the thread is being asked to do too much.

In an emergency, you can toss your gear into a blanket, gather the corners, and throw it over your shoulders. Another option would be to stuff your gear into a closed sleeping bag and sling *that* over your shoulders. Either of these solutions are obviously going to be far inferior to even the least adequate backpack though, so this substitution should be reserved for only emergencies.

#### 4. KNOW THE ESSENTIAL ITEMS TO BE TAKEN ON A BACKPACK TRIP.

- Good quality map of the area
- Compass
- Knife
- Flashlight
- Water treatment equipment
- Water bottle
- Food
- Change of clothes
- First aid kit
- Rain gear
- Backpack
- Fire lighting equipment
- Sleeping bag
- Sleeping pad
- Extra socks
- Good quality hiking boots or hiking shoes
- Eating and cooking utensils
- Backpacking stove and fuel
- Tent or tarp
- Toiletries (toothbrush, toilet paper, soap, etc)
- Compact shovel

#### 5. WHAT KIND OF SLEEPING BAG AND PAD ARE BEST FOR YOUR CAMPING AREA? KNOW AT LEAST THREE KINDS OF EACH THAT ARE AVAILABLE.

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##### SLEEPING BAGS

###### Rectangular

The rectangular sleeping bag is probably the most common, and is popular for light use. They are not suitable for backpacking because they provide the least amount of warmth and the most amount of weight. As the name implies, they are rectangle-shaped. While this makes them comfortable and roomy, the wide opening near the top is a major source of heat loss.

###### Mummy Bag

The mummy bag is shaped like a sarcophagus. It is narrow at the feet (but tall there to allow just enough room for the feet), tapers at the waist, widens again at the shoulders, and then tapers down near the head. The top is very much like the hood of a winter coat, complete with drawstrings to close up the gap and keep heat in. Because they conform so well to the human shape, there is very little wasted space inside. This is good because your body has to heat all that space, and because the extra insulation and material thusly removed does not have to be carried (meaning it's lighter).

### Barrel Bag

The barrel bag is a modified mummy bag. It is roomier than the mummy bag and provides almost the same warmth at the cost of additional weight.

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## SLEEPING PADS

Sleeping pads can perform two main functions:

1. Provide cushioning
2. Provide insulation between the sleeper and the ground.

### Air mattresses

Air mattresses are inflatable cushions that can provide a lot of comfort when it comes to sleeping on the ground. Unfortunately, they are not very warm as they provide next to no insulation beneath the sleeper. This may not be an issue, though it is well worth knowing.

### Open-cell foam pads

Open-cell foam is a type of foam padding that is sometimes found in furniture cushions or even in regular mattresses. It is lightweight - though somewhat bulky. Its chief disadvantage is that it soaks up water like a sponge.

### Closed-cell foam pads

Closed-cell foam makes the ideal sleeping pad. The closed cells do not soak up water. They are lightweight, comfortable, and compact. Often they are only half an inch (12 mm) thick, so they can be rolled into a small tube and strapped to a backpack. They also serve as an excellent thermal barrier between the sleeper and the ground.

## 6. KNOW HOW TO PACK A PACK PROPERLY.

1. Lay out all your gear where you can see it, next to your pack.
2. Look for empty spaces in your gear - for instance, there may be room inside your cooking pot. Put any small items that will fit inside that to conserve space. Look for other "hidden" space as well.
3. For an internal frame backpack, put the sleeping bag in first, at the bottom. For an external frame, tie it underneath the pack.
4. Load the heavy items next, placing them as close to your back as you can. This will shift the center of gravity forward which will help your balance and improve comfort. Be sure nothing is going to poke you in the back though.
5. Put the lighter items such as clothing in towards the outside of the pack.
6. Put the things you'll need on the trail (like water, trail mix, compass, map, etc) in the outer pockets where you can get to them. If they're hard to get to, you'll be unlikely to use them. And if you don't use them, why bring them at all?

## 7. WHAT TYPES OF FOOD ARE BEST FOR BACKPACKING? VISIT A GROCERY STORE AND LIST THE FOODS FOUND THERE THAT ARE SUITABLE FOR BACKPACKING. WITH YOUR INSTRUCTOR:

The best type of food to take backpacking is dehydrated food, as it is very lightweight, compact, and nutritious. You can buy food pre-packaged or you can dehydrate it yourself.

### A. PREPARE A MENU FOR A WEEKEND BACKPACK TRIP USING FOODS OBTAINED FROM A GROCERY STORE.

Although you can buy prepared dehydrated foods for backpacking at an outdoor outfitter, getting your food this way can be fairly expensive. Instead, try getting dehydrated food at a regular grocery store. Here's a short list of possibilities:

- Instant mashed potatoes
- Instant oatmeal
- Quick-cooking rice
- Powdered milk
- Powdered eggs
- Pasta
- Nuts and peanuts
- Dry soup mixes
- Dry beans, lentils, peas
- Granola
- Dried fruits (apricots, apples, and banana chips)
- Flour, mixed with other dry ingredients to make pancakes or biscuits

### B. LEARN THE TECHNIQUES OF MEASURING, PACKAGING, AND LABELING BACKPACK FOODS FOR YOUR TRIP.

Once you've bought the food you plan to eat on your backpacking trip, the last thing you will want to do is toss it into your backpack in its original packaging. Food packaging is designed to catch your eye at the grocery store, and to do this, it does *not* come in space-efficient sizes. Empty all of your food and repack it into sealable plastic bags (such as Zip lock bags). Make up a menu before you do this, and pack each meal into a separate bag. Then clearly label the bag with a permanent marker or a mailing label. The label should be legible even in dim light - you never know when you'll have to cook your food in the dark. This is a lot of trouble to go through, but it is well worth it during the trip.

If you wish to make pancakes, first determine how many pancake meals your party will eat, and mix it all up at once. It is a lot easier to accurately measure large amounts of flour, salt, and baking powder than it is to measure small amounts of the same. Mix it all together *thoroughly*, and when it is well mixed, scoop out enough to make one serving and place it in a baggie. Make as many single-serving baggies of pancake mix as you'll use. You can use the same technique for making soup mixes and other delectable's. Just keep all the ingredients dry and be prepared to add water at the campsite.

### C. MAKE A TRAIL SNACK.

There are millions of recipes for trail mix, and every seasoned backpacker has a favorite. Choose half a dozen ingredients (or more! or less!), mix them together, and put them in a baggie:

- Raisins
- Peanuts
- Cereal
- Frosted Flakes or other sweetened cereal
- Pretzels

- M & M's
- Chocolate chips
- Dried fruit
- Shelled sunflower seeds

Put the baggie in an easy to reach place in your pack so you can nibble on it while you hike. Don't worry about getting low-fat items. You'll be doing enough walking (and carrying a heavy pack) to burn a *lot* of calories - you'll *need* the fat.

## 8. KNOW THE PREVENTION AND SYMPTOMS OF, AND THE FIRST AID FOR:

### A. SUNBURN

Sunburn is from over-exposure to the harmful ultraviolet rays of the sun. While the symptoms are usually temporary (such as red skin that is painful to the touch), the skin damage is often permanent and can have serious long-term health effects, including skin cancer.

- There is no such thing as a "healthy tan." Unprotected sun exposure causes premature aging of the skin.
- Sun exposure can cause first and second degree burns.
- Skin cancer usually appears in adulthood, but is caused by sun exposure and sunburns that began as early as childhood. You can help prevent skin cancer by protecting your skin and your children's skin from the harmful rays of the sun.

#### Factors that make sunburn more likely:

- Infants and children are especially sensitive to the burning effects of the sun.
- People with fair skin are more likely to get sunburn. But even dark and black skin can burn and should be protected.
- The sun's rays are strongest during the hours of 10:00 a.m. to 4:00 p.m. The sun's rays are also stronger at higher altitudes and lower latitudes (closer to the tropics). Reflection off water, sand, or snow can intensify the sun's burning rays.
- Sun lamps can cause severe sunburn.
- Some medications (such as the antibiotic doxycycline) can make you more susceptible to sunburn.

#### First Aid

- Try taking a cool bath or shower. Or place wet, cold wash cloths on the burn for 10 to 15 minutes, several times a day. You can mix baking soda in the water to help relieve the pain. (Small children may become easily chilled, so keep the water tepid.)
- Apply a soothing lotion to the skin.
- Aloe gel is a common household remedy for sunburns. Aloe contains active compounds that help stop pain and inflammation of the skin.
- An over-the-counter pain medication, such as acetaminophen or ibuprofen may be helpful. DO NOT give aspirin to children.

#### Do Not

- DO NOT apply petroleum jelly, benzocaine, lidocaine, or butter to the sunburn. They make the symptoms worse and can prevent healing.
- DO NOT wash burned skin with harsh soap.

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## B. BLISTERS

### **Blister Prevention**

When it comes to blisters on the feet, it is always best to avoid them. Blisters are caused when your foot rubs against something repeatedly. Blisters can be avoided by wearing footwear that fits you correctly. Also, be sure to break your footwear in before embarking on a long hike. It also helps to wear two pairs of socks. When you do this, the inner sock moves with your foot and the outer sock moves with your boot. All the rubbing takes place between the two socks rather than between your foot and the sock. This will eventually wear a hole in your sock, but replacing socks is a lot less painful than hiking with a blister.

### **Blister Treatment**

Try not to break the blister open. It is far better if the skin continues to cover the injury, as this will keep out germs and prevent infection. If you must open the blister in order to be able to walk, do it as follows.

- Clean the affected area
- Sterilize a needle
- Pierce the blister in several places around its perimeter to drain the fluid, but try to leave as much of the skin intact as possible.
- Wipe the injury down with rubbing alcohol.
- Cover a small blister with an adhesive bandage
- Cover a large blister with gauze and adhesive tape.
- Be sure to allow the blister to breathe

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## C. FROSTBITE

Frostbite occurs when ice crystals form in the skin or deeper tissues after exposure to a temperature of 32°F (0°C) or lower. Depending upon the temperature, altitude, and wind speed, the exposure time necessary to produce frostbite varies from a few minutes to several hours.

The area's most commonly affected are the face and extremities. The symptoms of frostbite are progressive. Victims generally incur this injury without being acutely aware of it. Initially, the affected skin reddens and there is an uncomfortable coldness. With continued heat loss, there is a numbness of the affected area due to reduced circulation. As ice crystals form, the frozen extremity appears white, yellow-white, or mottled blue-white, and is cold, hard, and insensitive to touch or pressure. Frostbite is classified as superficial or deep, depending on the extent of tissue involvement.

### **Superficial Frostbite**

In superficial frostbite the surface of the skin will feel hard, but the underlying tissue will be soft, allowing it to move over bony ridges. This is evidence that only the skin and the region just below it are involved. General treatment for superficial frostbite is as follows:

1. Take the victim indoors.
2. Warm hands by placing them under the armpits, against the abdomen, or between the legs.
3. Warm feet by placing them in the armpit or against the abdomen of the buddy.
4. Gradually Warm the affected area by warm water immersion, skin-to-skin contact, or hot water bottles.
5. Never rub a frostbite area.

### **Deep Frostbite**

In deep frostbite, the freezing reaches into the deep tissue layers. There are ice crystals in the entire thickness of the extremity. The skin will not move over bony ridges and will feel hard and solid. The

objectives of treatment are to protect the frozen areas from further injury, to rapidly thaw the affected area, and to be prepared to respond to circulatory or respiratory difficulties.

1. Carefully assess and treat any other injuries first. Constantly monitor the victim's pulse and breathing since respiratory and heart problems can develop rapidly. Be prepared to administer CPR if necessary.
2. Do not attempt to thaw the frostbitten area if there is a possibility of refreezing. It is better to leave the part frozen until the victim arrives at a medical treatment facility equipped for long-term care. Refreezing of a thawed extremity causes severe and disabling damage.
3. Treat all victims with injuries to the feet or legs as litter patients. When this is not possible, the victim may walk on the frozen limb, since it has been proven that walking will not lessen the chances of successful treatment as long as the limb has not thawed out.
4. When adequate protection from further cold exposure is available, prepare the victim for warming by removing all constricting clothing such as gloves, boots, and socks. Boots and clothing frozen on the body should be thawed by warm-water immersion before removal.
5. Rapidly warm frozen areas by immersion in water at 100°F to 105°F (38°C to 41°C). Keep the water warm by adding fresh hot water, but do not pour the water directly on the injured area. Ensure that the frozen area is completely surrounded by water; do not let it rest on the side or bottom of the tub.
6. After warming has been completed, pat the area dry with a soft towel. Later it will swell, sting, and burn. Blisters may develop. These should be protected from breaking. Avoid pressure, rubbing, or constriction of the injured area. Keep the skin dry with sterile dressings and place cotton between the toes and fingers to prevent their sticking together.
7. Protect the tissue from additional injury and keep it as clean as possible (use sterile dressings and linen).
8. Try to improve the general morale and comfort of the victim by giving hot, stimulating fluids such as tea or coffee. Do not allow the victim to smoke or use alcoholic beverages while being treated.
9. Transfer to a medical treatment facility as soon as possible. During transportation, slightly elevate the frostbitten area and keep the victim and the injured area warm. Do not allow the injured area to be exposed to the cold.

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#### D. HYPOTHERMIA

Hypothermia is caused by continued exposure to low or rapidly falling temperatures, cold moisture, snow, or ice. Those exposed to low temperatures for extended periods may suffer ill effects, even if they are well protected by clothing, because cold affects the body systems slowly, almost without notice. As the body cools, there are several stages of progressive discomfort and disability. The first symptom is shivering, which is an attempt to generate heat by repeated contractions of surface muscles. This is followed by a feeling of listlessness, indifference, and drowsiness. Unconsciousness can follow quickly. Shock becomes evident as the victim's eyes assume a glassy stare, respiration becomes slow and shallow, and the pulse is weak or absent. As the body temperature drops even lower, peripheral circulation decreases and the extremities become susceptible to freezing. Finally, death results as the core temperature of the body approaches 80°F (27°C). The steps for treatment of hypothermia are as follows:

1. Carefully observe respiratory effort and heart beat; CPR may be required while the warming process is underway.
2. Warm the victim as soon as possible. It may be necessary to treat other injuries before the victim can be moved to a warmer place. Severe bleeding must be controlled and fractures splinted over clothing before the victim is moved.
3. Replace wet or frozen clothing and remove anything that constricts the victim's arms, legs, or fingers, interfering with circulation.
4. If the victim is inside a warm place and is conscious, the most effective method of warming is immersion in a tub of warm (100° to 105°F or 38° to 41°C) water. The water should be warm to the elbow - never hot. Observe closely for signs of respiratory failure and cardiac arrest (warming shock). Warming



shock can be minimized by warming the body trunk before the limbs to prevent vasodilatation in the extremities with subsequent shock due to blood volume shifts.

5. If a tub is not available, apply external heat to both sides of the victim. Natural body heat (skin to skin) from two rescuers is the best method. This is called "buddy warming." If this is not practical, use hot water bottles or an electric warming blanket. Do not place the blanket or bottles next to bare skin, however, and be careful to monitor the temperature of the artificial heat source, since the victim is very susceptible to burn injury. Because the victim is unable to generate adequate body heat, placement under a blanket or in a sleeping bag is not sufficient treatment.

6. If the victim is conscious, give warm liquids to drink. Never give alcoholic beverages or allow the victim to smoke.

7. Dry the victim thoroughly if water is used for warming.

8. As soon as possible, transfer the victim to a definitive care facility. Be alert for the signs of respiratory and cardiac arrest during transfer, and keep the victim warm.

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## E. HEAT STROKE

Heat stroke is a less common but far more serious condition than heat exhaustion, since it carries a 20 percent fatality rate. The main feature of heatstroke is the extremely high body temperature, 105° F (41° C) or higher, that accompanies it. In heatstroke, the victim has a breakdown of the sweating mechanism and is unable to eliminate excessive body heat built up while exercising. If the body temperature raises too high, the brain, kidneys, and liver may be permanently damaged.

Sometimes the victim may have preliminary symptoms, such as headache, nausea, dizziness, or weakness. Breathing will be deep and rapid at first, later shallow and almost absent. Usually the victim will be flushed, very dry, and very hot. The pupils will be constricted (pinpoint) and the pulse fast and strong.

When you provide first aid for heatstroke, remember that this is a true life-and-death emergency. The longer the victim remains overheated, the higher the chances of irreversible body damage or even death occur. First aid treatment for heatstroke is designed to reduce body heat. Reduce body heat immediately by dousing the body with cold water, or applying wet, cold towels to the whole body. Move the victim to the coolest possible place and remove as much clothing as possible. Maintain an open airway. Place the victim on his/her back, with the head and shoulders slightly raised. If cold packs are available, place them under the arms, around the neck, at the ankles, and in the groin. Expose the victim to a fan or air-conditioner since drafts will promote cooling. Immersing the victim in a cold water bath is also effective. Give the victim (if conscious) cool water to drink. Do not give any hot drinks or stimulants. Get the victim to a medical facility as soon as possible. Cooling measures must be continued while the victim is being transported.

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## F. HEAT EXHAUSTION

Heat exhaustion is the most common condition caused by working or exercising in hot spaces. Heat exhaustion produces a serious disruption of blood flow to the brain, heart, and lungs. This causes the victim to experience weakness, dizziness, headache, loss of appetite, and nausea.

Signs and symptoms of heat exhaustion are similar to those of shock: the victim will appear ashen gray; the skin will be cold, moist, and clammy; and the pupils of the eyes may be dilated (enlarged). The vital (blood pressure, temperature, pulse, and respiration) signs usually are normal; however, the victim may have a weak pulse together with rapid and shallow breathing.

Body temperature may be below normal. You should treat heat exhaustion victims as if they were in shock. Loosen the clothing, apply cool wet cloths, move the victim to either a cool or an air-conditioned area, and fan the victim. Do not allow the person to become chilled. If the victim is conscious, administer a solution of 1 teaspoon of salt dissolved in a quart of cool water. If the victim vomits, do not give any more fluids. Transport the victim to a medical facility as soon as possible.

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## G. SNAKE BITE

In a snakebite situation, every reasonable effort should be made to kill or at least to positively identify the culprit, since treatment of a nonpoisonous bite is far simpler and less dangerous to the victim than treatment of a poisonous bite.

Snake venom is a complex mixture of enzymes, peptides, and other substances. A single injection can cause many different toxic effects in many areas of the body. Some of these effects are felt immediately while the action of other venom components may be delayed for hours or even days. A poisonous bite should be considered a true medical emergency until symptoms prove otherwise.

The venom is stored in sacs in the snake's head. It is introduced into a victim through hollow or grooved fangs. An important point to remember, however, is that a bitten patient has not necessarily received a dose of venom. The snake can control whether or not it will release the poison and how much it will inject. As a result, while symptoms in a poisonous snakebite incident may be severe, they may also be mild or not develop at all.

It is essential that you be able to quickly diagnose snakebite as being venomous or not. Usually enough symptoms present themselves within an hour of a poisonous snakebite to erase any doubt. The victim's condition provides the best information as to the seriousness of the situation. The bite of the pit viper is extremely painful and is characterized by immediate swelling and excess fluid about the fang marks, usually within 5 to 10 minutes, spreading and possibly involving the whole extremity within an hour. If only minimal swelling occurs within 30 minutes, the bite will almost certainly have been from a nonpoisonous snake or from a poisonous snake that did not inject venom.

The aim of first aid for venom snakebites is to reduce the circulation of blood through the bite area, delay absorption of venom, prevent aggravation of the local wound, maintain vital signs, and transport the victim as soon as possible to a medical treatment facility. Other aid will be mainly supportive:

1. Apply a constricting band (i.e., rubber tubing, belt, necktie, stocking) above and below the bite. Each band should be approximately 2 inches from the wound, but NEVER place the bands on each side of a joint. If only one constricting band is available, place it above the wound. It should be tight enough to stop the flow of blood in the veins, but not tight enough to shut off the arterial blood supply. The victim's pulse should be palpable below the band.
2. If the victim cannot reach a medical treatment facility within 30 minutes of the time of the bite, and there are definite signs of poisoning, use a sterile knife blade to make an incision about 1/2 inch (13 mm) long and 1/4 inch (6 mm) deep over each fang mark on the long axis of the extremity. This technique is done only on the extremities, not on the head or trunk. Apply suction cups to help remove some of the injected venom. Suction by mouth is recommended only as a last resort, because the human mouth contains so many different bacteria that the bite could become infected. Incision and suction later than 30 minutes from the time of the bite is not recommended.
3. Check the pulse and respiration frequently. Give artificial ventilation if necessary.
4. Calm and reassure the victim, who will often be excited or hysterical. Keep the victim lying down, quiet, and warm. **DO NOT** give alcohol or any other stimulant to drink.
5. Treat for shock.
6. Use a splint to immobilize the victim's affected extremity, keeping the involved area at or below the level of the heart.
7. Cover the wound to prevent further contamination.
8. Give aspirin for pain.
9. Telephone the nearest medical facility so that the proper antivenin can be made available.
10. Transport the victim (and the dead snake) to a medical treatment facility as soon as possible. All suspected snake bite victims should be taken to the hospital, whether they show signs of venom or not.

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## H. CRAMPS

### Cramps

There are two basic causes of cramping. One is inadequate oxygenation of muscle, and the other is lack of water or salt. Cramps from poor oxygenation can be improved by rapid deep breathing, and stretching

the muscle. Cramps from lack of salt and water can be treated by stretching the muscle, drinking water and eating salt. Pounding on the muscle can increase soreness.

What happens in a cramp is that lactic acid builds up because of normal anaerobic muscle metabolism. When the muscle burns sugar without enough oxygen, it makes lactic acid. The lactic acid finally becomes concentrated enough to trigger the contraction of the muscle. When the muscle lacks salt, the nerves firing the muscle are unable to recharge properly, causing a similar effect.

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## I. DEHYDRATION

Dehydration is the depletion of water from the body. It can be prevented by drinking plenty of water, especially during periods of physical exertion. One to five percent dehydration will make you lose your appetite, become sleepy and nauseated, and begin to vomit. As dehydration goes up to 10 percent, dizziness results. You will have headaches, difficulty in breathing, tingling of the legs and arms caused by poor circulation, indistinct speech, and, finally, an inability to walk. Still, 10 percent dehydration generally causes no permanent ill effects. When dehydration exceeds 10 percent, you will become delirious, spastic, almost deaf, and barely able to see. The skin shrivels and becomes numb. At temperatures above 90°F, dehydration over 15 percent is generally fatal. At 85° and less, the body can stand up to 25 percent dehydration. Dehydration is quickly cured by water

First Aid for Mild Dehydration:

Avoid soda, tea or caffeine drinks

Increase water consumption slowly drinking water too fast will increase nausea

First Aid for Moderate Dehydration:

Avoid soda, tea or caffeine drinks

Increase water consumption slowly drinking water too fast will increase nausea

Drink a rehydration liquid

If no rehydration liquid is available use: teaspoon table salt, teaspoon baking soda, 3 tablespoon regular sugar to 1 liter (1 quart) of drinking water

Use room temperature rehydration fluids

Administer fluids until urine is clear

First Aid for Severe Dehydration:

Go to the emergency room! If you are not sure if the dehydration is moderate or severe, always seek the advice of a medical professional first.

## 9. HAVE A FIRST AID KIT IN YOUR PACK AND KNOW HOW TO USE IT.

Compact, lightweight first aid kits are available at many retailers and outdoor outfitters. But don't just go out, buy one, and toss it in your pack without another thought. It is important for you to open it up and examine every item. Then review the answers for the First Aid honor, so that you know how to use each item.

## 10. ACCORDING TO YOUR WEIGHT, WHAT IS THE MAXIMUM NUMBER OF POUNDS YOU SHOULD BE ALLOWED TO CARRY?

An adult should carry no more than a fifth to a third of his or her body weight in a backpack, depending on the level of fitness. A kid should not carry more than a quarter his body weight.

Your aim should not be to load your pack until you hit the maximum, but rather, to bring as little as you can get by with. But don't carry anything you aren't going to need. When it comes to backpacking, less is more! Don't kill yourself. Evaluate every item you put into your backpack. Little things add up quickly, so try not to duplicate functionality. For instance, if you're bringing a pocket knife, you can probably leave the

butter knife behind. Bring a spork rather than a spoon and a fork. Use parachute cord for a clothesline - it's very strong and can be used as rope. Distribute "group" gear among the group. Take the tent apart and have one person carry the fly, another canopy, and a third the poles. Instead of bringing a pillow, stuff tomorrow's clothes into a sack and use that.

## 11. KNOW THREE WAYS TO FIND DIRECTION WITHOUT A COMPASS. DEMONSTRATE AT LEAST TWO.

### NORTHERN HEMISPHERE INSTRUCTIONS



#### Finding Polaris

#### North Star

In the northern hemisphere on a clear night you can determine which direction is north by finding Polaris (the North Star). You can find Polaris by following the two "pointer stars" in the Big Dipper. Unfortunately, this method is only effective on clear nights.

#### Using a Watch

You can use an analog watch to figure out which way is south during the day. To do this, it is easiest if you remove the watch from your wrist first. Hold the watch so that the face is pointing upwards. Then rotate it until the hour hand points to the sun. You can use a blade of grass to cast a shadow on the watch face to make this easier - just line the hour hand up with the shadow. Once the hour hand is pointing towards the sun, you can find south by bisecting the angle between the hour hand and the 12 o'clock position. In other words, if it is 4:00pm, south will lie in the 2:00 o'clock direction (because 2:00 is halfway between 4:00 and 12:00). At 7:00 am, south will lie in the 9:30 direction (because 9:30 is halfway between 7:00 and 12:00).

#### Using a shadow

Find a straight stick at least 12 inches long (30 cm) and drive it into the ground such that it points directly at the sun. You can tell the stick is pointing directly at the sun because its shadow will disappear. Then wait until the earth rotates enough so that you can see the shadow. The shadow will point directly east.

### SOUTHERN HEMISPHERE INSTRUCTIONS

#### **Southern Cross to find south at night**

With the lack of a significant pole star in the southern sky (Sigma Octantis is closest to the pole, but is too faint to be useful for the purpose), two of the stars of Crux (Alpha and Gamma, Acrux and Gacrux

respectively) are commonly used to mark south. Following the line defined by the two stars for approximately 4.5 times the distance between them leads to a point close to the Southern Celestial Pole.

Alternatively, if a line is constructed perpendicularly between Alpha Centauri and Beta Centauri, the point where the above line and this line intersect marks the Southern Celestial Pole. The two stars are often referred to as the "Pointer Stars" or "White Pointers", allowing people to easily find the top of Crux.

The junction of these two lines is the SCP Southern Celestial Pole. If you were at the South Pole this would be directly above you. This is the point where the night sky revolves around. Point to this spot then lower your arm to the horizon. Where you are pointing is South.

### **Watch method**

Southern Hemisphere method only. Point the 12 to the sun. Halfway between the hour hand and the 12 is North. You still have to use your intelligence for this as early morning time and evening time care must be taken as to which half you use. Eg 8am sun is rising in the East; point 12 to the sun North is halfway between the 8 and the 12 at the 10. BUT late evening the sun is heading to set in the west say time is 8pm you point the 12 at the sun. North is halfway between the 8 and the 12 at the other side of watch at the 4. This should be used only as a guide as in some countries the real time has been adjusted and sometimes there is daylight saving time etc.

### **Stick method**

This method is a waste of time. We all know the sun rises in the East and sets in the West. The stick shadow shows you this. Also when the sun is at its zenith the highest it gets in the Southern Hemi look at the sun and it is towards the North the opposite in the Northern Hemi. So we learn that at mid day is the best time to find North (or South).

But if you must place a stick in the ground on an open area. Mark the shadows at times throughout the day. From this you can find North or South (depending what side of the equator you are on) from the shortest shadow and also East and West by drawing a line from the ends of the longest shadows assuming you had an early morning and late evening marking with equal time from mid-day. But for this you have to be lucky to have sunshine for most of the day, which usually is not the case if you are lost. Anyhow it is something to know if you do not have a watch to know when mid-day is.

## **12. SHOW THE PROPER WAY TO PUT ON AND TAKE OFF A BACKPACK ALONE AND WITH A PARTNER.**

### **Alone**

Set the backpack on a table (or a large rock), put your arms through the straps (loosened off), and lift with your legs. You can also set it on a rock or a log and sit down in front of it. Again, lift with your legs, not with your back. If there is nothing available to set your pack on; stand with your feet apart, one leg ahead of the other, knee bent enough to set your pack on it. With shoulder straps loosened off, slip one arm through the shoulder strap, lean into your pack and slightly downward, and roll it up onto your back. Once in place, slide your other arm through the shoulder strap. Always tighten your hip belt first, shoulder straps next and lastly your chest strap. Reverse this procedure for removing your pack.

### **With a Partner**

Have your partner lift your pack and hold it while you slip your arms into the straps. If you have to stoop, bend your knees. Remember to lift with your legs!

## **13. PARTICIPATE IN A WEEKEND BACKPACK TRIP OF AT LEAST FIVE MILES (8 KM) TO A SITE NOT ACCESSIBLE BY A VEHICLE AND COOK YOUR OWN MEALS.**

Five miles is a good backpacking trip for a beginner. Find a trail near you by visiting your local outdoor outfitter. These stores are most often staffed by people who enjoy backpacking and can provide you with valuable advice on destinations.

