

**Subject:** Dietary Needs and Food Planning

**Catchy Title:**

**Presenters Name:**

**When to teach this topic:** Will be discussed some by the Food Group in class, but also taught and discussed by you on the trail during an early break, at camp during set-up, and at the end of dinner before clean-up.

**Who is this for (level of experience and age of participants):** for those interested in the outdoors from 6<sup>th</sup> grade on.

**Resources:**

- NOLS – Soft Paths book
- LNT Teaching book – in class resources and for use at the Expeditionary
- Leave No Trace webpage - <http://lnt.org/>
- Web research

**Materials needed:**

**Outcomes:** Things for you to know and teach so that all participants will be able to know and do each following bullet by the end of this lesson.

- Leaders will know the average amount each person needs to consume on a trip of this sort to stay energized and healthy.
- Leaders will know how to organize the kitchen area, clean-up and store food using Critter Resistant food Containers (CRCs) and Bear Lines.
- Leaders will learn when and how to teach LNT related to food.
- Leaders will understand LNT food issues that occur on trail at breaks and during lunch.
- Leaders will know how to clean individual dishes and pots and pans.

**Introduction/Hook:** If you are going to take a horse to water...make sure it's thirsty. Make sure you are doing this at a time when the participants need this information and are ready to hear it (are people warm, hydrated and well fed?).

**Very short activity/introduction:**

**Procedures & Activities:** Steps, e.g. models, structured practice, guided practice, independent work. Include time allotments for all steps in each section. Usually 5-10 minutes per section. Timing is very important.

Explain & Demonstrate:

Step 1 \_\_\_ minutes

Step 2 \_\_\_ minutes

Step 3 \_\_\_ minutes

Step 4 \_\_\_ minutes

Practice (individually if appropriate):

**How to Assess each individuals skills:**

**Closure/Evaluation:** How will you close the lesson? How will the students remember what they learned today? Homework? Summary? Quiz? When? Usually allow at least 5 to as much as 10 minutes for this section.

**Evaluation:** Analyze the strengths and weakness of the lesson as it actually happened. Include things to avoid next time you teach the lesson, and what went particularly well. How was the timing of the lesson?

## ENVIRONMENTAL CONSIDERATIONS

As an increasing number of people head into the outdoors, our impact on both the land and one another has also increased. Signs of this impact are everywhere: litter, fire scars, trampled campsites, and habituated animals are all indicators of human disturbance of wildlands. Techniques designed to minimize the social and environmental impact of backcountry visitors have been developed by the national Leave No Trace education program. These methods are summarized as the following Leave No Trace principles:

- Plan ahead and prepare.
- Camp and travel on durable surfaces.
- Pack it in, pack it out.
- Properly dispose of what you can't pack out.
- Leave what you find.
- Minimize use and impact of fires.

These principles are recommended as a guide to minimizing signs of your visit when venturing into the backcountry. For more information or written materials, call the Leave No Trace office at 1-800-332-4100, or visit their web site at <http://www.lnt.org>.

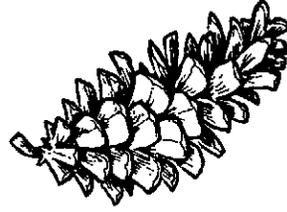
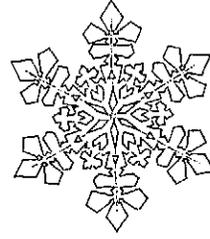
### Kitchen Cleanup

Leaving no trace in the kitchen starts before you leave town. Part of planning ahead and preparing involves repackaging your food to minimize potential litter as well as to lighten your load. With proper meal planning and careful cooking (no burning), you can eliminate most leftovers. But if you do end

up with extra cooked food, use discretion and eat it at another meal or carry it out. Burning leftovers requires an exceptionally hot fire and usually results in a mess. Trash has no place in the backcountry. Pack out what you packed in.

Certain waste—including waste water from cooking and washing—cannot be packed out. This water should be scattered widely, at least 200 feet away from any water source and far away from campsites. Remove all food particles from the water before disposing of it (a small strainer is good for this), and pack them out with your trash. One exception to this is fish guts. Fish viscera are a natural part of the ecosystem, but disposed of improperly, they are unsightly. Disperse them widely out of sight and well away from campsites. Don't throw remains into high alpine lakes and streams—they won't decompose in the cold water.

At NOLS, we use soap only for washing hands before food preparation. We clean the dishes with nature's scrub brushes—sand, pinecones, snow, pine needles, and bunches of



Natural scrubbers for cleaning can be pinecones, pine needles, sand, or snow.

grass—and give them a good rinse with boiling water just prior to eating. With this method, no soapy dishwater is added to the environment, and it also avoids stomach upsets caused by soap residue on the dishes. However, if you want to use soap, carry a small bottle of biodegradable soap and use a few drops for cleaning. Do your dishes at least 200 feet away from any water source to prevent contaminating the water. Remember, even biodegradable soap is a foreign chemical in aquatic environments and should be used sparingly and far away from water sources.

### Water Safety

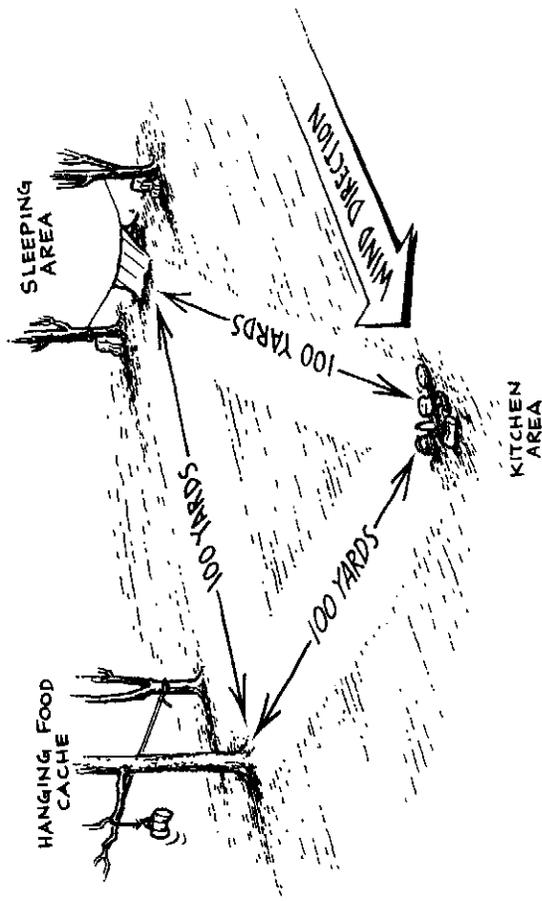
These days, no matter how remote the area, there's a good chance that the water supply is contaminated by *Giardia lamblia*, a parasitic microorganism that can make life miserable. Symptoms don't appear for two to three weeks after ingestion but include severe nausea, vomiting, diarrhea, and loss of fluids.

Water boils at 212°F at sea level. *Giardia* and most other waterborne pathogens are killed at 140°F, so when small bubbles—or what we call “fish eyes”—appear, the water is safe to drink. As you go up in altitude, the temperature at which water boils goes down, but it does not get as low as 140°F until you reach extreme altitudes, so for most of the wildlands in the world, “fish eyes” is an adequate standard.

Pathogens are also killed in the cooking process, so you don't need to use treated water when mixing sauces or bat-ters. Just don't lick the pan. For drinking water, most people either use a filter or treat their water with iodine. If you use a filter, be sure that the filter's pore size is no larger than 0.4 microns to ensure protection against *Giardia*.

### Bear Country

When traveling in bear country, be sure to check recommended bear practices for the area. You'll need to take extra precautions in the selection of your kitchen site. The cooking



Campsite layout for bear country

area should be at least 100 yards from the sleeping area. Be sure to empty your pack of all food and odorous substances, including trail food, soap, and toothpaste, and store them in the kitchen area. Be extra careful to avoid spills on your clothing. Fish and other greasy food smells are especially attractive



to bears, so take precautions to minimize personal contact with these substances.

At night, all food and other odorous substances should be hung. If you are camping at tree level, hang food so that it's at least 12 feet above the ground at its lowest point and at least 4 feet from any part of the tree. Choose a location at least 100 yards from your sleeping area. Above the tree line, carry bear-proof canisters for food storage.

### **Cold Weather Conditions**

It takes 15 to 20 minutes to melt snow and another 10 to 15 minutes to boil the water—half an hour before cooking can even begin. Therefore, in the winter, most food should be easy to prepare and of the one-pot meal variety. Cut foods such as cheese, salami, and bacon into bite-size pieces before your trip. Once they freeze, they become so hard to dice that you may cut yourself instead.

Obtaining water by melting snow becomes a major task (and fuel consumer) in the winter. You have to keep at it all the time, or you'll fall behind. It's easy to scorch a snow-filled pot if it's set directly on a high flame. To avoid scorching, add a little water to the bottom of the pot.

On sunny days, you can make a solar still to collect water. Place a dark-colored plastic tarp, garbage bag, or rain parka in a hollow in the snow and cover with a thin layer of snow. The sun's energy absorbed by the dark color will melt the snow. Shape a trough on one side of the tarp and drain water into a cooking pot. Large amounts of water can be obtained this way.

Because liquid intake is so important in winter (everyone should consume 3 to 4 quarts per day), bring along extra soup bases and drink mixes. Coffee and tea are diuretics, so use them in moderation in the winter. Also, it is nice to go to bed with a hot-water bottle. You can use it both for warmth and for hydration during long winter nights. Just make sure that the lid is screwed on tightly.

### **High Altitude**

Since the time needed to boil water increases with altitude, you need to allow yourself extra cooking time. As in winter, you'll want to prepare simple one-pot meals that require little preparation or cleanup. Carbohydrates are more appealing and more easily digested than proteins or fats at high altitudes. Lighter meals are encouraged during the first three days of acclimatization, and small frequent feedings should continue for the entire time at altitude.

Fluid intake is more important than ever and should be monitored closely. Dehydration can cause acute discomfort and affect physical performance. Aim for 3 to 5 quarts per day.

- When there are first-aid considerations for the safety of an individual.

#### WHEN NOT TO HAVE A FIRE

- When fire danger is moderate to high, even have to avoid using your stove
- When there are restrictions against certain altitudes.
- On windy days when sparks might land in woods are dry.
- When dead wood is scarce.
- When it's solely for group bonding, enjoyable and useful part of group candle can achieve the same effect. Leave No Trace techniques can res

#### GENERAL GUIDELINES FOR FIRE B

Choose a resilient site for your fire or stove in the tundra, and other areas that can be throughout the campsite rather than a single area. Good site selection and preparation make effective camouflaging much easier. Fires should be built far from tents, trees and root systems. They shouldn't be built in a layer of the soil is highly flammable ground for weeks before erupting (see 214).

Fires should not be ringed with rocks (fire ring). To avoid permanently blocking rock walls. Don't use river rocks in minute amounts of water that, when heated, causing the rocks to explode in a

#### IN HIGHLY IMPACTED AREA:

- Rings
- You may come upon one or more fire rings to build a fire, use an existing ring. Avoid rings too close to water so you don't burn your wood completely, scald

- Food particles (like noodles) that inevitably occur in dish washing should be treated like bulk leftovers and carried out. Strain the dish-water through a bandanna to separate out these particles.

- Fish viscera are a natural part of the ecosystem. In high-use areas, your goal is to minimize other people seeing or smelling them, so consider burying them in a cathole. In remote areas with few visitors, you can scatter them widely, away from camp and trails, to reduce the chance that other people will come across them. In bear country, it is important to keep fish odors safely downwind and away from people, trails, and campsites. You can scatter or bury the entrails, but do so far away from human travel areas. Throwing fish viscera back into lakes and streams is controversial (except in places where bear danger is high and viscera can be thrown into deep water). Small mountain streams may be too cold to allow for rapid decomposition.
- If you are in bear country, garbage should be hung just like food.

#### WASTE WATER

There will always be some leftover water, either from cooking and pot cleaning or personal bathing. Strain any food particles out for garbage. Then dig a small sump hole at least 200 feet (61 meters) from any water source and pour the wastewater into the hole. Replace the dirt and disguise the area by covering it with natural materials. The other approach is to scatter the water over a wide area. (For details on wastewater disposal in other ecosystems, see the Bibliography.)

#### CAMPFIRES

Don't have a fire just to have a fire. Be aware of fire regulations in the area before you leave on your trip. In certain areas, or at certain times (like high forest-fire danger), fires may be illegal. Here are some guidelines for when it's appropriate to have a fire:

#### WHEN TO HAVE A FIRE

- When fire danger is low and you have abundant dead wood available, and ...
- When there already is an established fire ring or conditions are such that you can create a Leave No Trace fire, or ...
- When your stove is not working and hot food is important for the safety of the group, or ...