

PROJECT LEAVE NO TRACE

Acknowledgments

An outreach effort, coordinated by the Mt. Baker-Snowqualmie National Forest Natural Resource Education Program in cooperation with The Mountaineers, the Girl Scouts - Totem Council, and the Chief Seattle and Evergreen Area Councils of the Boy Scouts of America, has developed into an educational program. The goal is to teach youth leaders how to teach wilderness ethics, history and Leave No Trace skills to youth, to encourage constructive dialogue and contacts between the participating organizations, and ultimately to protect Wilderness and the natural environment.

The Mountaineers and the Mt. Baker-Snowqualmie National Forest entered into a participatory agreement to develop a wilderness education program that would not only be well received by the Scout organizations, but would also be easily adapted for other groups.

Special thanks to the following people for their dedication and enthusiasm in developing the Project Leave No Trace (formerly called Scouting Ahead) program:

Kent Brooten	Boy Scout Scoutmaster, Chief Seattle Council
Jim Hovis	Boy Scout District Commissioner and Scoutmaster, Evergreen Council
Jan Prentice	Trainer, Girl Scouts Totem Council
Loren Foss	The Mountaineers, Conservation Education Coordinator
Steve Payne	The Mountaineers, Olympia Branch Wilderness Ethics Committee
Barb Miranda	Washington Wilderness Coalition, Wilderness Program Coordinator
Dona Wuthnow	USDA Forest Service, MBS Natural Resource Education Coordinator

Many other representatives from the participating organizations contributed to and reviewed this program. Since its inception in 1993, the Project Leave No Trace partnership had successfully completed two full cycles of the program - from workshops to certification. Support and enthusiasm continues to grow with new partners - the Washington Wilderness Coalition in 1994 and the National Outdoor Leadership School in 1995 - joining the program steering team. Without the shared effort of all these groups and individuals this program would not have been possible.

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P.L.N.T. is an educational program designed to provide information, materials, and support for Boy Scout and Girl Scout leaders, or other youth educators, interested in the ethics and skills fundamental to “Leave No Trace” outdoor recreation. The program is designed to multiply its effect by training adult leaders who then teach their youth groups and share the program with other leaders who will do the same. The program is laid out in three parts consisting of the manual "A Leader's Guide to Teaching and Learning Leave No Trace" (contained here on-line), an introductory workshop for leaders, and the Leave No Trace Certification Event. This final component is a day long, intensive, practical and written examination testing both adult leaders and youth on Leave No Trace skills and their understanding of wilderness ethics and history. Successful participants receive an exclusive “I Leave No Trace” patch and a certificate. The event is fun as well as challenging, and brings together volunteers from participant organizations and land management agencies to interact directly with the youth in the community.

The roots of Project Leave No Trace lie in one Wilderness Ranger’s desire to be proactive about reducing impact to Washington’s Wilderness areas. Her ideas brought the commitment of numerous people who worked together to design a program that met the goals and needs of all the partners. (See the “Forward” by Loren Foss.) Since its inception P.L.N.T. has grown and evolved, continually improving its effectiveness and content. For example, we have learned that Boy and Girl Scout organization are very different, and outreach to these audiences often requires a different approach. We also, in the future, would like to design a field evaluation method that would measure the program’s success through monitoring behaviors in the backcountry.

1. The Workshop

The four-hour workshop is presented by Project Leave No Trace representatives to organization leaders and training officers.

The workshop's goal is to introduce PLNT, the principles of Leave No Trace and their need, and how to teach these concepts. The "*Project Leave No Trace: A Leader's Guide to Teaching and Learning Leave No Trace*" manual will be given to workshop participants. Participants will be asked to take on the Leave No Trace Challenge—to learn the concepts, then train their students to be Leave No Trace experts, and ultimately, to have them certified at one of the Certification Events.

2. Skills Training

If an organization leader takes on the Leave No Trace challenge, he or she reviews and masters the materials in the manual, then intensively trains their members in Leave No Trace skills. Using the manual as a guide, the students receive an overview of wilderness ethics and history, and in-depth training in the principles and skills of Leave No Trace camping and travel techniques. The manual provides instructors with activities and techniques to teach Leave No Trace skills.

3. Leave No Trace Certification

A Leave No Trace Certification Event is then offered to recognize groups that understand and have adopted the Leave No Trace skills. This check consists of a day long event, where students demonstrate their Leave No Trace skills. Certification cards and patches are awarded to leaders and students upon successful completion of the Field Check Event. The focus is on *Backcountry* Leave No Trace Skills.

FORWARD

On a warm radiant Saturday in September 1994, more than two hundred Boy Scouts and their leaders gathered near Mt. Rainier, Washington. They must have been a little awestruck; they were greeted by signs along the highway, banners, bullhorns, registration tables, a National Guard truck, Sheriff's cars, and traffic controllers. Twenty or so Forest Service personnel in full dress and dozens of busy-looking volunteers with clipboards who directed them toward elaborately taped-off testing areas. These Scouts were presenting themselves for the first such evaluation of their knowledge about minimum impact hiking and camping. Known collectively as "Leave No Trace," these seven principles of wilderness ethics form the cornerstone of **Project Leave No Trace (P.L.N.T.)**, the partnership project conceived by the U.S. Forest Service, The Mountaineers, and local councils of the Boy Scouts and Girl Scouts. But, I'm getting ahead of myself.

Like many, I suppose, I've been noticing some disturbing changes in the recreational landscape of North America. Crowded trails, trashed campsites, wild colors of outdoor gear, required backcountry permits, limited camping at popular locations, and National Park entry fees with camping fees tacked on top -- are just a few signs of the times. The issue of human waste is no longer just a snickered joke about "no stone left unturned" at a few notorious locations. Words like *Giardia* and *Cryptosporidium* are now common to our vocabulary. Where once I dipped my cup in unpolluted streams, I now can drink only after purifying the water.

In short, a real wilderness experience has become harder to find. Backcountry travelers who once seemed a courteous and friendly lot, in touch with their surroundings, are giving way to increasing hordes of inconsiderate hikers, parading noisily in large entourages, accompanied by untrained, unleashed dogs. It seems as though many outdoor recreationists are making a beeline for the woods, seashores, rivers and mountains to have fun on their terms only, not in context with nature, but with the comforts and habits of home. These changes are resulting in physical damage to a splendid legacy, and compromise to esthetic attributes. Trails have become rutted quagmires, campsites are compacted, stripped and unnatural, lake shores trampled and littered with toilet paper. The passage of hundreds of hikers is apparent.

Opportunities for real solitude are increasingly rare. Some climbs, for instance, have become so crowded that one's safety is at stake. On a recent climb of Mt. Rainier which I led, our troop arose at the unheard of hour of 10:30 PM to begin the summit climb at midnight without interference from other climbers. Turning around at the first break to check my team, I was shocked to see the lights of a hundred other headlamps, spaced like Christmas tree lights over half a mile long, following closely on our heels.

To say that we are ready for a change in the way we approach wilderness in the U.S. would be an understatement. But to strike out alone seems fruitless. Joining together in a partnership of agencies and organizations dedicated to preserving the resources and essence of wilderness is the dream.

In April 1993, The Mountaineers hosted a meeting to explore ways of making a positive impact in environmental education. Attending that meeting was a young ranger from the U.S. Forest Service, Barb Miranda, who was attracted to our break-out group exploring collaborative education ideas. Barb was dissatisfied at handing out citations to hikers and campers who were out of compliance. Ticketing young hikers like Scouts, in particular, didn't seem a good way to change behavior; especially when it might be a young person's first experience in the backcountry and the reason behind the regulations wasn't understood. Wouldn't it be far more meaningful, she reasoned, to educate young hikers up front, before they developed bad habits? If young hikers could be trained through their own organizations, using commonly held principles of minimum impact camping, then you stood to tread far more lightly on the land and develop good public relations at the same time. That would certainly beat the alternative: a sour taste in the mouths of those who went home from the woods wondering why they'd been punished when all they wanted was to experience the freedom of the hills.

A few weeks later, I met with some recreation managers from the Mt. Baker National Forest who were following up on our efforts to partner. I was introduced to Dona Palmer, the Public Information Officer for the Forest. We swapped partnership proposals, but didn't come up with an instant match. A second meeting was arranged where Dona, Barb and I voiced the concepts for **P.L.N.T.** Barb had already contacted the local Scouting community; a pair of dynamic leaders, Kent Brooten and Jim Hovis, seemed eager to participate in a wilderness training program with responsible stewardship at its core. Before we

left the restaurant we scribbled a lively mission statement and outlined a work plan. Dona would pursue some funding possibilities with the Forest Service and Barb would meet with the two Scout leaders plus a trainer from the Girl Scouts. I would begin to tackle the job of curriculum development and look for volunteers from within Mountaineers ranks. It was agreed that any training program needed not only the cooperation but the active participation and planning of all groups involved.

A steering committee was formed consisting of seven members representing the four original partner organizations: Dona and Barb from the Forest Service, Kent and Jim from the Boy Scouts, Jan Prentice from the Girl Scouts, and Steve Payne and myself from the Mountaineers. I don't think any of us realized how much time and hard work lay ahead. Months went by. Meetings took place wherever a room was available. One evening, the building where we were supposed to meet happened to be locked. Undeterred, we sat down at a picnic table bathed in moonlight, and conducted business in the darkness of a cool fall night.

Concepts needed to be discussed. Problems called for creative solutions. We decided on a two-tiered program to meet the needs of younger Scouts, who came with greater limitations. Through it all we truly worked as a team; and though we argued for our own points of view, our shared vision was never out of sight.

From these beginnings evolved an exciting, four-step project. We would gather and organize the principles and skills, motivate Scout groups to learn them, train Scout leaders to present the material to their troops, and finally, recognize participating Scouts as Leave No Trace certified upon successful completion of a field check event. Our centerpiece turned out to be a manual on wilderness ethics. The task was to meld the best ideas from widespread sources into a set of guidelines which also addressed our particular circumstances here in the Northwest. Sources included U.S. agencies; the National Outdoor Leadership School (NOLS) and its affiliate, Leave No Trace, Inc. (LNT, Inc.); recent writings from the Scouting community; and "Easy Does It," guidelines used by The Mountaineers. The Result was "***A Leader's Guide to Teaching and Learning Leave No Trace.***"

To complement the manual, a Scout leader training program was developed and packaged, designed to train the trainers. Finally, the evaluation piece

(Certification Event) rounded out the package. Saturday, September 17, 1994, was the appointed date. Eighteen senior evaluators first received a three-hour training session designed to assure uniform procedures and set the tone for the complicated weekend to follow.

Three hundred and sixty-six Boy Scouts were invited. Several levels of the Forest Service were involved, up to the Forest Supervisor himself. Dozens of volunteers served as assistant evaluators, test graders, traffic controllers, first aid personnel, “runners,” and registration, rescue demonstration, or graduation personnel. All the while there was great concern about the availability of Forest Service personnel earmarked for “The Event” who were fighting fires all over the West.

Organization with differing styles and viewpoints were at work. To reach consensus with harmony on many levels required great communications. It was our good fortune to have a number of volunteers who wore more than one hat. There were Mountaineers members who worked for the Forest Service, and several of those who were involved in Scouting. There always seemed to be someone with dual representation who would help avert disaster by being aware of certain tendencies, suggesting a course of action, and saving the day.

Well it was quite an affair. With the aid of flawless weather the whole thing stayed remarkably on schedule and the program was on its way. When it was all over, and the vans loaded with kids bounced off down the rutted road, leaving a trail of dust, we stood drained yet exhilarated on that field in late afternoon sunshine. Feedback was filtering in, and the word was good. Scouts and leaders alike were impressed, very pleased, and perhaps more importantly, they had learned something.

One volunteer walked over and said, with a touch of pride in her voice, “One of my Scout leaders came up to me just now -- a guy who never pulls any punches, and isn’t afraid to tell me if something stinks. He said ‘It was a fantastic event; the whole program was great! The only problem is, next time I’ll be bringing the rest of my troop, but there won’t be any room and the waiting line’ll be too long.’” My friend grinned as she walked away, “Success will be our next big problem once the word gets out.”

A lot has happened since then. Two more prestigious organizations have joined the partnership: NOLS and Washington Wilderness Coalition (WWC). Maintenance of the local program has progressed to a high degree of efficiency and success. But that very success brings new challenges. A growing reputation spawns outreach, which places new demand on our top volunteers. The partnership has developed a "Cookbook," a set of detailed instructions on how Scout Councils from British Columbia to New Mexico might start their own programs. We were thrilled to be asked by Scouts Canada to introduce **P.L.N.T.** to their programs. Their versions of the manual adapts the project to the Canadian context, while holding firm to a proactive approach to educating young people about the principles of Leave No Trace.

This program faces many obstacles in the future. Ongoing education projects do not attract funding in the same manner as start-up efforts. Where should we turn in our attempt to find partners? How can we continue to spread the **P.L.N.T.** message without affecting our local autonomy? What about the loss of so many key volunteers who are feeling the blade of government budget-cutting? How do we continue to motivate the key volunteers who are instrumental to the program's development and success?

These and many more questions will be grappled with in the months ahead. By then there will undoubtedly be a new set of questions. But I'm an optimist. A hurdle is only a barrier if you are afraid to jump. The goal of better stewardship for our natural resource treasures, our heritage, cannot stand as a barrier, but as a splendid challenge. I am certain we will find a way -- a way that will let me share with my grandson my enjoyment of the wilderness.

Loren Foss
Education Manager
The Mountaineers, Seattle, Washington

INTRODUCTION:

“ As long as I live, I’ll hear waterfalls and birds and winds sing. I’ll interpret rocks, learn the language of flood storm, and the avalanche. I’ll acquaint myself with the glaciers and wild gardens, and get as near the heart of the world as I can.”

-John Muir

The very word "Wilderness" implies freedom, challenge, risk and adventure. Boy and Girl Scout organizations have a long history of using wildlands as the training ground for developing well-rounded citizens of exemplary integrity and character. Today, increasing numbers of people are taking to the hills to escape the hustle and bustle of urban living. One consequence of this rise in use has been a marked increase in impacts to our fragile wild areas. While all visitors come to enjoy the many facets of the wilderness, many come with habits that may damage the integrity of the wilderness itself and the water, land, plants and animals that live there. Many of our traditional camping methods are simply no longer appropriate in wilderness. There is a need for new camping techniques; we call these new techniques Leave No Trace skills. Quite simply, Leave No Trace is defined as traveling and camping with care, deliberately planning and guiding one's actions so as not to harm the environment or disturb others.

A Leave No Trace awareness and understanding is vital if we are to protect our remaining natural areas and retain the image and credibility of our respective organizations. The Project Leave No Trace program is a tool to aid Scout leaders, and others, in teaching Leave No Trace camping skills to their students. The manual is an excellent guide for planning frontcountry and backcountry trips, and provides Leave No Trace activities to assist in training.

By practicing Leave No Trace skills we can ensure that the beauty and naturalness of Wilderness Areas and other natural landscapes is preserved for us and for future generations.

Where to Begin

During any kind of outdoor activity, it is important to make as little an impact to the environment around you as possible. Listed below are PLNT Principles of Low Impact Recreation. The seven are the overarching

principles that apply to any type of outdoor activity and are integral to the program.

Project Leave No Trace Principles of Low Impact recreation

- 1. Plan ahead and prepare.**
- 2. Camp and travel on durable surfaces.**
- 3. Pack it in, pack it out.**
- 4. Properly dispose of what you cannot pack out.**
- 5. Leave what you find.**
- 6. Minimize use and impact of fires.**
- 7. Minimize noise and visual intrusion**

*Based on the seven principles of the national Leave No Trace program.

Attitude and Awareness

A positive attitude and a Leave No Trace awareness are probably the best tools to have along on your troop's trip. By approaching each new outdoor situation with a good attitude—actually wanting to minimize your troop's impact — and by increasing your awareness about the impact your troop's activity could cause — you can avoid causing that impact. Use your judgment and go light on the land. Practice Leave No Trace skills from backyard to backcountry!

LEAVE NO TRACE SKILLS:

“Man always kills the things he loves, and so we pioneers have killed our wilderness. Some say we had to. Be that as it may, I am glad I should never be young again without wild country to be young in. Of what avail are forty freedoms without a blank spot on the map?”

-Aldo Leopold

How To Use This Material

The Frontcountry and Backcountry Leave No Trace skills listed in the following sections can be taught directly to the students on your outings, or by following one of the sample syllabi offered in the *Appendix*.

In the *Activities* section you will find a variety of activities to reinforce your teaching plans.

Also in the *Appendix* you will find supporting resources to aid in your teaching efforts.

As educators you play an important role in fostering the student’s individual responsibility toward conserving our remaining wildlands. To aid you in this task this site also includes an interpretation of the Wilderness Act, and some activities focusing on the personal meaning of wilderness along with history and ethics surrounding the protection of our public lands

Skills:

The Leave No Trace skills presented here are generalized to encompass standard camping and backpacking experiences. In order to accommodate the types of Leave No Trace skills suggested for various settings, the skills have been divided into two sections:

1. *Frontcountry Leave No Trace Skills*
2. *Backcountry Leave No Trace Skills*

The frontcountry skills encompass techniques which will minimize your group's impact in a developed setting such as a campground, or city park. The backcountry skills encompass techniques which will allow your group to Leave No Trace in more primitive wilderness settings.

Think of the Frontcountry and Backcountry Skills laid out in this manual as spokes on a Leave No Trace Awareness Wheel. They are specific to camping and hiking in most front- and backcountry situations. Other spokes may include canoeing, desert travel, rock climbing, snowmobiling, etc. At the hub of this wheel are the Seven Principles of Low Impact Wilderness Recreation (National Outdoor Leadership School, 1994) listed above. These basic principles apply in all situations. By following them you can use your own judgment and awareness to choose the appropriate techniques to Leave No Trace.

Frontcountry Leave No Trace Skills

Skills in this section are oriented toward frontcountry settings. If you are traveling in more primitive settings refer to the Backcountry Leave No Trace skills for guidance.

Frontcountry settings encompass campgrounds and roaded areas. Areas where camping equipment does not need to be packed in generally fall under the Frontcountry Leave No Trace Skills.

SKILLS:

- PREPLANNING
- TRAILS AND TRAVEL
- PEOPLE, PLANTS, AND WILDLIFE
- NOISE AND VISUAL POLLUTION
- CAMPSITE SELECTION
- CAMPFIRES AND STOVES
- HEALTH AND SANITATION

PRE-PLANNING

Unnecessary impact in backcountry areas can be avoided by carefully preparing for your trip. For example, if backcountry users do not have the proper clothing to stay warm and comfortable in an unexpected snowstorm they may be forced to build large, highly impacting fires in areas where they should not be built.

—National Outdoor Leadership School, 1992

Establish a goal for each trip

- Know what you want to accomplish before you choose your area. Try to have at least one Leave No Trace or environmental education activity planned for your trip.

Where to go

- Contact the appropriate public land management agency in the area for permits, campsite reservations or for any special regulations or available activities.
- In established campgrounds use “group areas” if available — this area must often be reserved.

Group Size

- Plan your group size after you have researched the area you are visiting.
- Ideal group size for a frontcountry Leave No Trace trip is 12 or less.
- Frontcountry areas are appropriate places for training larger groups.

When to Go

- Try to plan your outing for the middle of the week and off peak season times, when there are fewer people camping.
- Avoid holidays.

Food Packaging

- Plan your menu for minimum impact by eliminating unnecessary packaging that can mistakenly become a source of litter . Consider using foods that require less cooking.
- Reduce litter at the source. Try dried foods instead of canned goods. If canned goods are used, buy in the largest size needed for groups.

Try to avoid buying foods in packaging that is not recycled in your area.

Gear

- Always carry the Ten Essentials and the equipment necessary to practice no trace camping (the Ten Essentials and Leave No Trace Essentials are listed in the Appendix).
- Avoid bright, flashy colors. When possible, buy and use camping equipment and clothing in earth tones.
- Bring camp stoves and use them in all meal preparation. Even when fires are normally allowed, fire danger conditions may change. You may arrive at a campground to find that fires are no longer allowed. Always have a stove along.

Other Items

- Dogs are naturally curious about the wildlife they encounter. This curiosity can lead to unpredictable behavior. Barking dogs disturb everyone.
- It is better to leave pets at home. For your safety, give someone a written itinerary. Use the itinerary form provided in the Appendix. The information provided is critical for search and rescue personnel. If your plans change, let your contact know if possible.

TRAILS AND TRAVEL

Day hikes are an important part of group programs in a frontcountry setting. Since trail conditions will vary from season to season check with the appropriate public land management agency to obtain information before the trip.

Be Prepared

- Wear adequate footwear to minimize the tendency to walk off established trails to avoid muddy areas. If water resistant boots are not worn, make sure hikers have two pairs of shoes, one to get wet, another to stay dry. Gaiters worn over boots and socks can help keep feet and socks clean and dry. It is possible to wear a sock layer,

a plastic bag, and then the shoe to keep feet dry. Extra socks are a must.

Trailed Area

- Stay on established trails.
- Don't shortcut switchbacks.
- Hike single file.
- Stay in middle of trail. Try to cross through muddy, water-soaked stretches. Try not to skirt to the sides, as this widens the trail and increases erosion.
- Stay on the trail even if it is rutted.
- When crossing snow patches, follow the trail vicinity as best as possible.
- Avoid trails in fragile areas when saturated after heavy rain or snowmelt.

Trailless Area

- Off-trail travel is strongly discouraged in frontcountry settings. Social trails develop quickly here because of the large number of people who visit these places.
- Stay on trails and concentrate activities in areas established for group activities.
- If high impact games are played, use a durable surface (sand, gravel, playfield grass).

Trail Etiquette

- When meeting others, tell them you'll step off the trail, this way you can find a hardened area to move into. If possible, avoid stepping off the trail and onto plants.
- Yield right of way to uphill hikers. Step off trail onto a durable surface.
- When encountering horses, llamas or other pack animals, stop, step off trail to the downhill side, and speak quietly to let the animals know you're there. Follow the instructions of the rider. Livestock always have the right of way.

Leave Natural

- Take pictures; leave wildflowers for all to enjoy.

- Pick up litter along the way. Make a game of it. For example, you might give a prize to the person who collects the most trash.
- Fragile trail-sides can easily be destroyed by people resting there. Rest on the trail itself or on hardened borders.

PEOPLE, PLANTS, AND WILDLIFE

Observing wild animals, wildflowers, and birds is an integral part of the outdoor experience. There are many ways to enhance our ability to observe and identify wildlife and plants yet not impact them in any way. There are many historic and even archaeological sites on public lands that are rare and fragile too

Keep wildlife healthy and self-reliant by not feeding them, either intentionally or unintentionally. Respect the right of wildlife to remain wild, and respect the signs of those who came before.

Noise

- Keep the noise level low. Shouting and yelling not only disturbs animals, but also other campers.

Food and Garbage

- Keep a clean camp. All food and garbage should be kept in sealed containers and stored away from the sleeping area. Try to store food in car trunk, otherwise store it according to specific area regulations or the guidelines outlined in the Backcountry Leave No Trace skills.
- If garbage cans are available, use them. Many campgrounds do not have garbage service during the off-season. If this is the case, Pack It Out.
- At each meal, prepare only what you can eat. Clean the cook area after meals and dispose of all leftover food and food scraps properly. Do not bury or scatter.
- Cook with a stove. Grease and food scraps left in a firepit attract animals.

Plants

- Leave wildflowers for all to enjoy.

- When gathering berries, mushrooms, or other edible plants take only what you can eat on your trip. Leave plenty for animals and others. A good rule of thumb is to take only 10% of any plant in the immediate area.
- Do not chop or scar trees in any way. This includes live and dead trees. Never hammer nails into trees or use wire for camp fixtures, etc.
- If crafts using natural materials are scheduled, either bring materials from home or check with the proper agency prior to arrival to get information about appropriate collection areas and methods.
- Use toasting forks rather than sticks for toasting marshmallows.
- Leave plants, shells, rocks, and pine cones as you find them — their presence adds to the beauty of the areas. Obey local regulations.
- Play low impact games that stress observation rather than collection.

Animals

Gray jays, ravens, crows, nutcrackers, mice, marmots, skunks, raccoons, and bears can be persistent scavengers once we have allowed them to associate food with humans. Leave No Trace skills are essential to ensure that human encounters with animals are not only exciting and safe, but also that the habitat and wildness of these creatures is respected.

- Never feed wildlife. Human food is not healthy for the animals and it discourages them from foraging for their natural nutrition.
- Dogs are naturally curious about the wildlife they encounter. This curiosity can lead to unpredictable behavior. Barking dogs disturb wildlife and people. It is better to leave pets at home.
- Allow the animal to determine how close the encounter should be. Don't pursue wildlife in an attempt to get a better glimpse or picture of it. If the animal moves you are too close.
- Avoid coming between animals and their offspring. An "abandoned" baby animal has probably been left while the mother is out foraging for food. Resist the temptation to touch or move the baby.

In Bear Country

- In most frontcountry areas and parks, food storage containers will be provided if bears are a problem. Follow posted guidelines.

- Store all food, garbage and toiletries well away from sleeping area.
- Do not sleep in the same clothes you cooked in.
- Don't use perfumes, deodorants, or other sweet smelling substances.

Historic and Archaeological sites

- These treasures from the past can teach us a lot about what it was like to live here long ago, but they are fragile and require special care and respect
- Do not remove artifacts, mark structures or destroy any of these features. These remnants of the past are protected by law on all public lands
- Some sites are sacred, or are important reminders of the past to Native Americans and other groups. Treat all historic and archaeological sites and artifacts with respect
- Do not camp in historic or archaeological sites. This can break or cover up important artifacts

NOISE AND VISUAL POLLUTION

Most people travel to recreation areas to reconnect with the natural world. Our campgrounds have become so crowded, campers often find they are escaping to places with more noise and more people than the places they left. By minimizing noise and visual intrusion we respect the rights of others and promote the image of our organizations.

- Reserve the group camp areas, if possible. These are generally removed from individual camping areas.
- Be considerate of other campers; singing and skits should be over early; rowdy games and loud parties are inappropriate.
- Choose a well screened campsite. If camping outside of a campground, camp in an established site away from trails, shorelines, and open meadows.
- Avoid brightly colored clothing and equipment.
- Fireworks of any kind are illegal and dangerous.
- Use whistles only in an emergency.
- Respect the rights of other visitors for solitude and quiet.
- Strive for good citizenship in the frontcountry.

- Observe campground curfews. Traditional campground quiet hours are from 10 PM to 6 am.

CAMPSITE SELECTION

Campgrounds

- Make reservations if necessary.
- Select a campsite large enough to accommodate the group.
- Stay on established trails to and from the campsite and other campground facilities or attractions.
- Erect tents in slightly raised areas that have good drainage. There is no need to trench around your tent, use a plastic tarp instead.
- If multiple campsites are used, use only the main road or established social trails between sites.

Undeveloped Frontcountry Areas

- Choose an established site well away from water and the road.
- Backcountry Leave No Trace Skills generally apply in these areas.

CAMPFIRES AND STOVES

Use a candle, gas, or propane lantern to gather around in the evening. The stars are vivid and the darkness enchanting without a fire. To minimize impact, campfires should only be used in frontcountry areas with established fire rings. If you build a fire to sing around, build a small one to save precious wood and minimize clean-up time.
REMEMBER—You don't need a fire.

- Fires should be set in existing fire rings or pits with grates. Don't build another fire ring.
- Clean out fire pit before building a fire. Remove and pack out all foil, glass, and metal found in fire pit.
- Before you light a fire ask yourself: Do you really need one? Consider the following:
 - Are permits required?
 - Is there an adequate source of wood?
 - Do you have adequate water available for safety?
 - Is there a high fire danger?

- Make sure the area around your fire is clear of debris and dry grass. Check to see that there are no tree branches overhead.
- Keep fires small and make sure they burn completely.
- Do not build fires against rock, in meadows, next to trails, or near water.
- Never cut or break branches from living or dead trees, standing or down. Any wood you can't break with your hands should not be burned.
- Bring your own firewood when possible.
- If you must collect wood in the vicinity of the campground, collect firewood at least 100 feet from campsites.
- Make sure there is no garbage in the fire; aluminum foil and cans do not burn!
- Never leave your fire unattended and make sure it is out cold before leaving.
- Burn ashes completely and leave in fire pit.

HEALTH AND SANITATION

Human Waste Disposal

- If restrooms or latrines are available—USE THEM.
- Do not put *any* garbage in campground toilets. This includes diapers.

Disposing of Litter

- Use garbage cans or dumpsters when available.
- If none are available, pack it out and recycle!

Washing Yourself

- Use wash facilities if available.
- Leave restroom facilities clean.
- If no facilities are available follow guidelines in the Backcountry Leave No Trace skills.

Washing Dishes

- Follow posted instructions in campgrounds.
- Properly dispose of all food scraps; either put in trash can or pack out. Do not leave in sink or scatter in campground.
- Use only washbasins designated for washing dishes. Avoid using bathroom sinks.
- If “gray water” disposal sites are available, strain food particles from water and dispose of the water in the drains.
- If no disposal site is provided, strain food particles and scatter the gray water well away from camps, trails, roads and water sources.

Backcountry Leave No Trace Skills

Skills in this section are oriented toward backcountry settings. Most of the skills outlined are required to Leave No Trace on wilderness trips. If you are staying in a more developed frontcountry setting refer to the Frontcountry Leave No Trace Skills for guidance.

Backcountry settings encompass most unroaded, primitive areas. Areas where camping equipment needs to be packed in generally fall under the Backcountry Leave No Trace skills.

SKILLS:

- PREPLANNING
- TRAILS AND TRAVEL
- PEOPLE, PLANTS, AND WILDLIFE
- NOISE AND VISUAL POLLUTION
- CAMPSITE SELECTION
- CAMPFIRES AND STOVES
- HEALTH AND SANITATION

PRE-PLANNING

Unnecessary impact in backcountry areas can be avoided by carefully preparing for your trip. For example, if backcountry users do not have the proper clothing to stay warm and comfortable in an unexpected snowstorm they may be forced to build large, highly impacting fires in areas where they should not be built.

—National Outdoor Leadership School, 1992

Establish a goal for each trip

- Know what you want to accomplish before you choose your area. Try to have at least one Leave No Trace or environmental education activity planned for your trip.

Where to go

- Contact the appropriate public land management agency in the area for permits, for any special regulations, and for trail conditions.

Group Size

- Plan your group size and choose an appropriate route after you have researched the area you are visiting.
- Ideal group size for a Backcountry Leave No Trace trip is four to six.
- Most backcountry areas have a group size limitation. You may arrive at the trailhead to find new or different information from when you called prior to your trip, so be prepared to split into separate groups by day, or even go to two totally separate areas! Ensure that the correct leader/Scout ratio is along to enable you to do this.

When to Go

- Try to plan your outing for the middle of the week and off peak season times when there are fewer people camping.
- Avoid holidays or select a remote area.

Food Packaging

- Plan your menu for minimum impact. Remove unnecessary packaging and repack foods stored in glass or metal containers into light-weight reusable containers .
- Consider using foods that require less cooking.
- Dried foods are less bulky and lighter than canned goods.

- Avoid twist ties. Take ziploc bags or use long, sturdy plastic bags and tie a knot.
- Plan recipes carefully to avoid carrying excess food—pack out all unused food.

Gear

- Always carry the Ten Essentials and the equipment necessary to practice no trace camping, such as extra trash bags and a trowel (the Ten Essentials and Leave No Trace essentials are listed in the Appendix).
- Avoid bright, flashy colors. Buy and use camping equipment and clothing in earth tones.
- Carry light weight camp stoves with windscreens and use these in all meal preparation. Even when prepared to have minimum impact fires, fire danger conditions may change and fires may be banned until the conditions improve. Always have a stove along.
- Large water bags and collapsible buckets allow you to carry sufficient water to camp, reducing the number of trips you need to take to the water source.
- Bring tents with coated floors and sealed seams so there is no need to ditch around tents in a rainstorm.
- Bring suitable sleeping pads. There is no need for gathering boughs or using moss or grass padding.
- Hatchets, hammers and nails will find little use in the backcountry when Leave No Trace skills are being practiced. Nails driven into trees permanently scar the tree.
- Axes should not be used to collect firewood. Use small, dead wood gathered from the ground.
- Check with the correct land management agency about possible trail maintenance needs. If removing downed trees from trails, a bow saw is safer and more efficient than an ax. Axes are unnecessary in the backcountry.

Fires

If you “need a fire” you are probably not prepared and probably should not be camping in that area. Properly prepared campers do not NEED a fire. Improperly prepared campers need a fire for a variety of reasons. These include:

- Wet clothes (inadequate rain gear).
- Wet boots (boots not sealed properly).
- Wet sleeping bags (make sure tent floor is seam sealed and put sleeping bags inside a plastic bag **INSIDE** a stuff sack -- the stuff sack keeps the plastic bag from tearing, the plastic bag keeps the sleeping bag dry).
- Cold body temperature (inadequate clothing, use wool, polypropylene, etc. Wet cotton removes heat from the body 30 times faster than bare exposed skin, wool continues to insulate when wet).
- No stove.

Experienced campers can stay warm and dry without a fire even in the rain and snow. Aspire to this level. Techniques for building low impact campfires are outlined in the Activity Section for older Scouts.

Other Items

- Give someone a written itinerary. Use the itinerary form provided in the Appendix. If your plans change, let your contact know if possible.
- Dogs are naturally curious about the wildlife they encounter. This curiosity can lead to unpredictable behavior. Barking dogs disturb everyone. Leave pets at home.

TRAILS AND TRAVEL

Traveling is a large part of any backcountry trip. Here too, pre-planning plays a large role in ensuring that your group Leaves No Trace. Trail conditions will vary according to season—contact the appropriate public land management agency before your trip to obtain trail information! Leave No Trace techniques vary according to traileed or trailless travel.

Be Prepared

- Wearing adequate footwear will help keep your feet comfortable. Stay on established trails even if they are muddy. Water resistant boots are worthwhile Leave No Trace equipment. When your boots are adequately sealed you can walk through a lot of water and still be dry at the end of the day. Consider ankle gaiters as further insurance

against wet feet, stones, and mud. Light weight boots are comfortable and easier on the trail, but they may not be appropriate when trail is wet and muddy.

Trailed Area

- Concentrate use and impact. Stay on established trails.
- Don't shortcut switchbacks; shortcutting causes erosion.
- Hike single file.
- Stay in the middle of the trail. Try to cross through muddy, water-soaked stretches. Try not to skirt to the sides as this widens the trail, damages vegetation and increases erosion.
- Stay on the trail even if it is rutted.
- When crossing snow patches, follow the trail vicinity as best as possible.
- Avoid trails in fragile areas when saturated after heavy rain or snowmelt.
- Trail obstructions such as fallen trees and boulders often are a source of unnecessary impact caused by people seeking an easy path around them. To Leave No Trace, take the time to remove them, go over them, or go around them where it causes the least impact.
- Avoid damaging stream banks when obtaining water; use stable, established routes.

Practice Easy Trail Maintenance

- Place fallen branches or rocks, without causing other disturbances, across and in switchback shortcuts.
- Clean blocked culverts or drains.
- Divert running water off trail.
- Remove trail obstructions—lift or roll off the trail if it is safe to do so.

Trailless Area

- Disperse use and impact.
- Traveling off-trail requires planning and sensitivity. Know your route, the fragile vegetation types, and hazards you may encounter.
- Avoid cross country travel when soil is saturated after heavy rain or snowmelt.
- Avoid stepping on plants, including lichen on rock.

- Use care when ascending or descending slopes—find new routes if you have to dig toes or heels into soil.
- Travel on durable surfaces, such as snow, rock, sandy or gravel surfaces, or change routes.
- Spread out, don't follow each other. Four separate routes contribute less impact than four hikers traveling single file through an alpine meadow.
- Avoid lightly impacted areas, such as new social trails that could recover if not traveled over repeatedly.
- Leave trailless areas free of blazes, cairns, and flagging unless you plan to remove them on the way out. (Use your judgment if safety is an issue.)
- Many trailless areas have established campsites and social trails. Use these instead of creating new ones.

Trail Etiquette

- When meeting others tell them you'll step off the trail, this way you can find a hardened area to move onto. Avoid stepping off the trail and onto plants.
- Yield right of way to uphill hikers. Step off trail onto a durable surface.
- When encountering horses, llamas or other packstock, stop and step off trail to the downhill side. Follow the instructions of the packer. Livestock always have the right of way.

Leave Natural

- Take pictures, leave wildflowers for all to enjoy.
- Pick up litter along the way. Make a game of it. For example, you might give a prize to the person who collects the most trash.
- Fragile trail-sides can easily be destroyed by people resting there. Rest on the trail itself or on hardened borders.

PEOPLE, PLANTS, AND WILDLIFE

Observing wild animals, wildflowers, and birds is an integral part of the outdoor experience. There are many ways to enhance our ability to observe and identify wildlife and plants yet not impact them in any way. There are also many historic and even archaeological sites on public lands that are also rare or fragile.

Keep wildlife healthy and self-reliant by not feeding them, either intentionally or unintentionally. Respect the right of wildlife to remain wild.

Noise

- Keep the noise level low. Shouting and yelling not only disturbs animals, but also other hikers.

Food and Garbage

- Keep a clean camp. All food should be kept in sealed containers and stored away from the sleeping area.
- Give your garbage the same protection as your food.
- Hang your food. Nylon packcloth is not a deterrent for most animals and hanging it is extra insurance.
- At each meal prepare only what you can eat. Take all leftover food and food scraps home. Do not bury or scatter.

Plants

- Leave wildflowers for all to enjoy.
- When gathering berries, mushrooms, or other edible plants take only what you can eat on your trip, and only gather a small amount from each area.
- Do not chop or scar trees in any way. This includes live and dead trees. Never hammer nails into trees.
- Avoid collecting plants, shells, rocks, and pine cones — their presence adds to the beauty of the areas. Obey local regulations.
- Play low impact games that stress observation rather than collection.

Animals

Gray jays, ravens, crows, nutcrackers, mice, marmots, skunks, raccoons, and bears can be persistent scavengers once we have allowed them to associate food with humans. Leave No Trace skills are essential to ensure that human encounters with animals are not only safe and exciting, but perhaps more importantly, that the habitat and wildness of these creatures is respected.

- Never feed wildlife. Human food is not healthy for the animals and it discourages them from foraging for their natural nutrition.
- Dogs are naturally curious about the wildlife they encounter. This curiosity can lead to unpredictable behavior. Barking dogs disturb everyone. Leave pets at home.
- Allow the animal to determine how close the encounter should be. Don't pursue wildlife in an attempt to get a better glimpse or picture of it. If the animal moves you are too close.
- Avoid coming between animals and their offspring. An "abandoned" baby animal has probably been left while the mother is out foraging for food. Resist the temptation to touch or move the baby.

In Bear Country

- Hang food well away from the sleeping area, down wind, if possible.
- Suspend food and garbage in stuff sacks at least 10 feet above the ground, 5-10 feet from the tree trunk, and 3-6 feet below the limb on which they hang. In areas above the tree line, hang food over a large boulder. Use bear proof containers if provided.
- You may want to have a separate food storage area, cooking area and sleeping area. Use your judgment.
- Do not sleep in the same clothes you cooked in.
- Don't use perfumes, deodorants, or other sweet smelling substances.
- Sometimes special precautions must be taken in bear country that may seem contrary to LNT Principles, *but these precautions must be taken to protect humans and bears*. If land managers post instructions, follow them exactly.
- This setup may be impractical and have negative physical impacts in some areas. It is possible that more impact will be caused by following this guideline. If you feel that more impact will be caused, use your judgment —either move to an area where this setup can be

followed, or modify the setup by putting the food storage and cooking area in one place and varying the distance between that place and your tent site.

- Consider the impact caused by travel between the sleeping area, storage area, and kitchen. In a high use area stay on established trails; in a pristine area disperse use and impact. Avoid travel on social trails that are just beginning to show wear.

Historic and Archaeological sites

- These treasures from the past can teach us a lot about what it was like to live here long ago, but they are fragile and require special care and respect.
- Do not remove artifacts, mark structures, or destroy any of these features. These remnants of the past are protected by law on all public lands
- Some sites are sacred, or are important reminders of the past, to Native Americans and other groups. Treat all historic and archaeological sites and artifacts with respect
- Do not camp in historic or archaeological sites. This can break or cover up important artifacts.

NOISE AND VISUAL POLLUTION

- Build a sensitivity to the experience of others. Many people visit wilderness areas for solitude and privacy and to enjoy the sounds one can only experience in a wilderness. By doing everything reasonable to stay hidden from other users, more people can visit wilderness areas with less disturbance and less impact. This is important in all areas but is of particular importance in popular high-use areas.
- Screen your campsite. Camp away from trails, shorelines, and open meadows. These sites are traveled frequently and should be reserved for day use so that everyone can enjoy them.
- Be considerate of other backpackers and of the wildlife in the area; rowdy games and loud noises are inappropriate. By remaining quiet,

you will have more opportunities to observe wildlife and to hear distant thunder and avalanches.

- Avoid brightly colored clothing and equipment.
- Leave radios and recording devices at home.
- Fireworks of any kind are illegal, dangerous, and not appropriate in wilderness.
- Use whistles only in an emergency.
- Use discretion with musical instruments (recorders, flutes, harmonicas, guitars) in a wilderness setting.
- Respect the rights of other visitors for solitude and quiet.

CAMPSITE SELECTION

Wherever you travel and camp, it is best to confine your use to durable surfaces that are resistant to impact. Such surfaces include trails and established campsites, snow, rock, sand, pine needles, and dry grasses.

In Popular Places

Popular places are high-use areas where people regularly visit and camp and signs of human impact are obvious. *In these areas the goal is to concentrate use and impact.*

- Use established sites — these sites generally have reached a point where conscientious use will not cause more impact.
- Select a campsite large enough to accommodate the group, or divide your group to fit in more than one site.
- Set up tents and “kitchens” in areas that have already been disturbed.
- Stay on well worn social trails to and from the site.

In Pristine Places

Pristine Places are low-use areas where there are few visible signs of human impact. A trailed area can still be a pristine area. *In these areas the goal is to disperse use and impact and utilize resistant surfaces as much as possible.* Evidence of previous use in a campsite invites subsequent use and starts a cycle of impact.

- Camps should be made in durable sites that show no evidence of previous use and that will probably not be camped in again.

- Campers should leave themselves enough time at the end of the day to find a durable site.
- Disperse Use — spread out tents, activity areas, and travel routes — avoid developing new social trails.
- Camp only one night in the same spot. Use your judgment, if it is a durable site you can stay longer.
- Wear soft soled shoes in camp to prevent impact.

Stay off Places that are lightly impacted or just beginning to show effects

- Never camp in sites that show signs of only moderate use. These sites are most vulnerable as they can easily move to one side of the spectrum (established site) or the other (pristine site).

Setting Up Camp

- Use a carefully-sized ground sheet to protect your tent floor. Never alter or trench your site! Make sure your tent floor is seam sealed and waterproof.
- Consider the impact caused to travel between sleeping area, storage area, cooking area, and water sources. In pristine areas disperse use. Avoid travel on social trails that are just beginning to show wear.
- Know which plant species and soil types are particularly vulnerable to trampling.
- In all areas camp 100-200 feet away from water if possible to protect the fragile riparian vegetation and to screen your camp (areas along water are popular day-use areas). There are often established sites within 100-200 feet of water. Use your best judgment in choosing your site. Choose the site that causes the least social and physical impact.

Leave Natural

- Campsites don't need a fire pit per tent site. Destroy excess fire pits.
- Remove all litter from campsite—even if it isn't yours. Remove cords from branches and litter from bushes.

- Naturalize a pristine site: sweep away boot prints, fluff up grass, etc. If rocks or branches were moved, return them to their original condition when you leave.

CAMPFIRES AND STOVES

The use of campfires in the backcountry was once a necessity and is now steeped in history and tradition. This tradition is so entrenched in our minds that for some the thought of going on a backcountry camping trip and not having a fire is almost unthinkable. However a new attitude is developing toward campfires. This attitude is a direct result of the growing hiking population, the past misuse of campfires, and the ugly scars caused when fires are built incorrectly or in the wrong places.

—National Outdoor Leadership School, 1992.

In order to Leave No Trace backcountry visitors should never need a fire. Fires leave visible scars and are inappropriate in many areas. In some cases fires will still be used in the backcountry. If you do choose to have a fire or need to, due to an emergency, refer to Fires or Stoves? in the Activities section of this manual for three methods to build a low impact fire. Please note that some wildlands have vast areas where campfires are prohibited.

- If you need a fire you are probably not prepared and probably should not be camping in that area. Properly prepared campers do not NEED a fire. Improperly prepared campers need a fire for a variety of reasons. These include:
 - Wet clothes (inadequate rain gear).
 - Wet boots (boots not sealed properly).
 - Wet sleeping bags (make sure tent floor is seam sealed and put sleeping bags inside a plastic bag INSIDE a stuff sack -- the stuff sack keeps the plastic bag from tearing, the plastic bag keeps the sleeping bag dry).
 - Cold body temperature (inadequate clothing, use wool, polypropylene, etc. Wet cotton removes heat from the body 30 times faster than bare, exposed skin, wool continues to insulate when wet.).
 - No stove.

Experienced campers can stay warm and dry without a fire even in the rain and snow. Aspire to this level.

- Use a candle or candle lantern to gather around in the evening. The stars are vivid and the darkness enchanting without a fire.
- Always use lightweight camping stoves for cooking your meals. Clean and check your stove for proper operation before each trip. Refuel your stove on a rock away from water so spilled gas won't contaminate foliage or soil.
- If you find a fire ring in a pristine place or a lightly impacted site, take the time to disassemble it by moving rocks apart, turning the blackened side down or throwing them in a nearby stream or lake. Scatter the ashes and return the area to the most natural state possible.

HEALTH AND SANITATION

Human Waste

Proper disposal of human waste is important to avoid pollution of water sources, avoid the negative implications of someone else finding it, minimize the possibility of spreading disease and maximize the rate of decomposition.

—National Outdoor Leadership School, 1992

- Pick a spot out of traffic patterns and at least 200 feet away from water, trails, and campsite—use toilets where available.
- Dig a hole with a shovel or trowel—6 inches deep and 4 inches around. Cover waste and naturalize the area.
Pack out all toilet paper, tampons and pads.

The Six D's Of Human Waste Disposal:

Distance 200 feet from water, trail, and campsite.

Dig with a shovel or trowel

Depth 6 inches deep and 4 inches around

Dump self explanatory

Disguise bury or cover

Decomposition let it do its thing.

Litter

- Pack It In Pack It Out
- Hang trash with food.

Health

- Treat all water for drinking
 - Boil reach a rolling boil at any altitude
 - Filter many commercial filters are available
 - Chemical iodine, chlorine, or other purification tablets or solutions
- Tablets or crystals both require 1/2 an hour to purify water. Remember the water in the lip of the container must be sterilized also.
- To avoid spreading germs, don't share trail mixes or water bottles.
- If you use soap for dish washing, ensure that all of it is rinsed off dishes to avoid diarrhea.
- Carry a well-stocked first aid kit and know how to use it.

Washing Yourself

- Always keep soap away from lakes and streams.
- Pick an untravelled area and bathe at least 200 feet away from water.
- If you choose to use soap, make sure it is biodegradable.
- Have a buddy help carry and pour water, you do the same for him/her.
- Remember that bug repellents and sunscreen can contaminate the water. Rinse off before going swimming.

Washing Dishes

- Plan ahead—careful planning before you are out will allow a menu to be prepared without a lot of leftovers. If you have leftovers, pack them out. Wipe plates and pot out before washing. Put all scraps with garbage to pack out.
- Don't rinse dishes in streams or lakes.
- Fling dishwater in arc at least 200 feet from lake, stream, or campsite. Let rinse water cool, then fling.
- Refer to the activities section for a no trace dish washing technique.

ACTIVITIES

“Stepping out into wilderness and looking past ourselves, we see the vivid space of great forests, mountains, rivers, and deserts. You might say the wilderness experience gives us a standard by which to measure our sanity. [It] calls out the wilderness inside ourselves, and we’re always surprised by its sane and gentle nature.”

-Albert Sajio

These activities are compiled from a variety of sources and are designed to correspond with the seven Leave No Trace Principles.

Additional activities (including some for younger students) can also be found on these pages.

- Plan Ahead and Prepare
- Travel on Durable Surfaces
- Camp on Durable Surfaces
- Pack it In, Pack it Out
- Properly Dispose of What You Cannot Pack Out
- Leave What You Find
- Minimize Use and Impact of Fires

Plan Ahead and Prepare:

A Leave No Trace activity exploring meal planning

What Your Group Will Learn

After engaging in an activity designed to study meal planning, participants will be capable of:

1. describing reasons for planning meals and snacks prior to a trip.
2. creating a recipe for a one-pot meal.
3. choosing lightweight snacks.

Your group will compare two backpacks: one with one-pot meals and lightweight snacks and the other packed with more complex meals and bulky snacks. Group members will use the weight of the packs and the amount of garbage created from the meals and snacks to determine the best preparation for meal/snack planning.

Materials and Preparation

Materials

- A backpack packed with one-pot meals (see menus below) and snacks such as gorp, fruit sticks, hard candies, and dried fruit. All meal items in this pack should be prepackaged into sealable bags to reduce bulk, secure food, and reduce garbage. For example, transfer items such as couscous, cereal, and noodles from commercial packaging into sealable bags. The bags can be packed out, washed and reused at home.
- A backpack packed with more bulky meals such as hot dogs, canned chili, canned soup, canned stew, bottled catsup, and snack such as cans of pop, cans of fruit, and a jar of peanuts.

Preparation

- Read the entire lesson plan before starting. This activity should take about 70 minutes.
- Prepare two backpacks as described in the Materials section and have them ready before the meeting.

Grabbing Your Group's Attention - 10 Minutes

Preparing a menu and snack ahead of time will help group members pack lightly with a minimal amount of garbage and will make use of a stove more convenient, eliminating the needs for a campfire.

Present students with two closed backpacks. Let each participant try on both packs. Take a vote to determine which pack is lighter and hopefully more comfortable. Without looking at the contents of the backpacks, have your group list items that might be contributing to the weight of the heavier pack.

Steps for Teaching the Activity - 30 Minutes

Divide the participants into two groups, giving a pack to each group. Have them unpack the contents of the two packs and sort the food items.

Time Out for Discussion

How long does the group think it would take to prepare the meals from each pack?

Focusing on the meal preparation items only, have the students compare the items from each pack.

What characteristics of the meal and snack items from the heavier pack contribute to its weight?

The answer to this question depends on your choice of food items for each pack. Hopefully, you have created a situation that allows everyone to see

that planning for one-pot meals, repackaging food and packing lightweight snacks lightens the pack load.

What difference in litter would result from cooking meals and snacking from each pack?

This answer also depends on your choice of items from each pack. Hopefully, you have created a situation that allows the group to see that planning for one-pot meals, repackaging food and packing lightweight snacks reduces garbage.

Which pack would require the fewest utensils for cooking and the smaller fire?

Wrapping Up the Activity - 30 Minutes

How well has each person learned to plan meals and lightweight snacks?

Have people create a menu for a one-pot meal and suggest lightweight snacks for one full day in camp.

Describe how their meals and snacks will lighten their backpack, reduce garbage, and eliminate the need for a campfire.

Hold a backyard cookout with campstoves. Have people create a lightweight, low-cost, one-pot meal that produces a minimum of trash.

Check local outdoors stores and your public library for magazines and camping books with other one-pot recipes.

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Travel On Durable Surfaces:

A Leave No Trace activity exploring travel concepts

What your Group Will Learn

After participating in an activity designed to study backcountry travel, group members will be capable of:

1. describing the value of trails in backcountry travel.
2. applying Leave No Trace ideas to travel decisions in the backcountry and near home.

Your group will create and travel through an imaginary Backcountry Landscape. They will take two trips. First they will imagine their backcountry landscape is a popular well-used area with a developed trail. On the second trip, they will imagine the area is rarely used. How will the group members choose to travel to their destination in each situation? The Backcountry Landscape will provide a focal point for questions and discussion.

Materials and Preparation:

Materials

- A large (approximately 18" x 24") shallow box or container with an open top. An outdoor sandbox or similar area will also work well.
- If a box is used, collect enough sand, dirt, or similar material to fill the box to a depth of about 1 inch.
- Small paper cutouts or other objects to simulate natural features: animals and vegetation (trees, shrubs, grasses,. etc.)
- Small stones and flat rocks to simulate boulders and rocky surfaces.

Preparation

- Read through the entire lesson before beginning. This activity should take about 75 minutes.
- Prepare the Backcountry Landscape prior to the group's arrival by creating a flat, featureless layer of slightly damp sand or soil in the bottom of the box.
- Have group members make small cutouts or bring toy objects and rocks from home to simulate the natural features. Preparing these items in advance will contribute to your success.

Alternative Setting: a sandlot playground can serve as a “life-sized” backcountry if preferred. Prepare the sand with a rake or other tool to create your featureless landscape. The trick is to make the area smooth enough so that everyone will see the effects of their travel. Swing sets and other playground equipment can serve as rocks and other natural features.

Grabbing Your Group's Attention

Your group is going to build an imaginary backcountry setting. The Backcountry Landscape they create will serve to stimulate people's curiosity and interest; they will actually see their “footsteps” on the landscape. Presenting the activity in a fun and interesting way is crucial to its success.

Have everyone gather around the prepared box or soil or sand. Using the cutouts, pebbles, rocks and other objects, have the group create a backcountry world into which they will enter on an imaginary hiking trip. Your backcountry world should include a stream or river, trees, a meadow and at least one flat rock area. Designate a point at one end of the box as the “Starting Point” and a point on the other end of the box as the “Final Destination”.

Steps for Teaching the Activity - 45 Minutes

Scenario 1: On-trail

1. Have participants decide as a group where to locate a narrow “hiking trail” leading from the Starting Point to the Final Destination. Tell them they must include a short section of zigzags (switchbacks). Have one person use two fingers to draw the trail in the sand.

2. Present the following scenario: Imagine the group is planning a trip through their Backcountry Landscape. The trail and destination are visited yearly by many hikers and campers. The goal of the group is to leave as little trace as possible from the Starting Point to the Final Destination. Each participant should indicate the route they would take by letting their “fingers to the walking” in the moist sand. Instruct the group to identify one spot for a rest break along the way. Let each person indicate a path before discussing.

Time Out For Discussion: Trails

Why did you choose the route you did?

Most people will choose to stay on the trail. The discussion should focus on choosing the route that will protect the land and prevent new trails from developing.

Why do land managers build hiking trails for backcountry visitors?

Constructed trails concentrate hiker activity and prevent informal trails-which increase vegetation and soil erosion-from forming.

Where should the group stop for breaks?

Taking breaks off-trail can preserve solitude for others; however, always take breaks on durable surfaces. Move to gravel or flat rocks if such surfaces can be found without disturbing soil and vegetation. Stay on the trail and allow room for others to pass if moving off-trail will result in damage.

How noisy were people during the hike?

A little chatter is part of hiking, and can reduce the risk of bear encounters in bear country. However, screaming, radios and other loud noises upset the outdoor experience of all visitors and may disturb wildlife.

Summarizing key points:

- Use existing trails
- Avoid taking shortcuts
- Walk single file. Avoid widening trails.

Scenario 2: Off-trail

1. Use a wide paint brush or your hand to erase the trail from your Backcountry Landscape.

2. Present your group with a new scenario: Imagine the group is planning a trip through a new backcountry, but this one is rarely visited by hikers and campers - it has no trail leading to the destination. The goal of the group is still to reach the Final Destination while leaving as little evidence of its passing as possible. How should group members travel to their destination? Again, each person should indicate their route by letting their “fingers do the walking” in the moist sand or dirt. Let each person indicate a path before discussing.

Time Out for Discussion: Trailless

Why did you choose the route you did?

Traveling off-trail will present group members with difficult decisions. It is important to help develop people’s critical thinking skills by weighing their effects of alternative off-trail choices. Should they spread out or walk in the same path?

Would your choice differ if this was a desert environment? Forested environment?

Generally, spreading out will be the best choice, but this may be inappropriate in a desert environment.

Where should the group stop for breaks?

Find durable surfaces when stopping for breaks.

Summarizing key points:

- Avoid hiking off-trail in highly sensitive areas, especially with large groups. Consider changing your travel plans. Inexperienced hikers should only travel off-trail when necessary. Some areas have regulations regarding group size
- Spread out and travel on durable surfaces to avoid making new trails if the area is pristine, but not highly sensitive. Take special precautions in desert areas.
- Don't mark your path. Leave No Trace that may encourage others to follow and create unwanted trails.

Wrapping Up the Activity - 15 Minutes

- What role does pre-trip planning play in choosing the best route for a backcountry excursion? How might planning a route before starting a trip help protect the land?
- Imagine that each person travels at random, some walking along the banks of the stream, some traveling through the trees, and some taking shortcuts up steep banks. How might this random method of route selection impact each scenario?
- Small groups reduce the likelihood that an unsightly web of new footpaths will be created. How large a group might be appropriate for a trailed backcountry? For a trailless backcountry? If your camping group is larger than the group size you suggested here, how might you solve this problem?

- Can the group recall examples of travel damage they have seen in the backcountry?
- Have any group members seen poor travel habits near their homes or in parks?
- What are the city's equivalent to trails?
- Ask each person to describe one backcountry travel idea they will promise to use when traveling the outdoors - or even in the city.

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Camp on Durable Surfaces:

A Leave No Trace activity exploring campsite selection

What Your Group Will Learn

After participating in a activity designed to study campsite selection, group members will be capable of:

1. determining the best location for a campsite.
2. applying Leave No Trace ideas to campsite selection decisions in the backcountry.

Your group will use a sketch of a heavily-used campsite to help them decide the best location for setting up a campsite. The sketch will provide a focal point for questions and discussions.

Materials and Preparation:

Materials

- A copy of a backcountry scenario for each person.
- Small adhesive-backed colored dots to simulate tents. Each person should have the same number of dots as the group would have assuming two people per tent - 10 campers = 5 tents.

Preparation

- Design a backcountry alpine scenario with a stream, trees, and several fire-rings placed at a distance from the stream.
- Make photocopies of the scenario for each member of the group.
- Purchase dots.

Grabbing Your Group's Attention - 5 Minutes

Have your group look at the backcountry sketch and share what they observe about the scene. Explain that they will be using their drawing to make decisions about how to choose the best campsite in an area that has had a lot of visitation.

Steps to Teaching the Activity - 20 Minutes

1. Distribute the scenario and activity sheets.
2. Divide the group into teams of three or four people. Tell them that each group is part of a larger group on a trip to a primitive backcountry area. Before starting the activity, each group should determine the size of the larger group, keeping in mind that this particular wilderness allows no more than 10 campers per group.
3. Distribute button-sized dots (tents) to each group. Assume two people will share one tent - 10 people = 5 tents.
4. Go over the directions for the following Alpine Scenario. Have the group complete the activity and follow it up with Time Out for Discussion.

Time Out for Discussion

Where would you advise your group to camp?

Most people will choose the established campsites. Discussion should focus on choosing a site that will protect the land and prevent new impact to the area.

Why is camping next to the stream not an acceptable option?

Discussion should focus on protection of riparian zones, the fragile, green area along the bank of the stream, on water contamination and on scaring wildlife from coming down to the stream to drink.

Rearrange the tents (dots) if the discussion causes participants to change their minds. Have people explain the reasons for the changes.

Summarizing key points for heavily-used areas:

- Camp 200 feet or more from lakes, streams, meadows and trails
- Select campsites that are already established and properly located.
- Confine most activities to the areas of the site that are already bare.

Wrapping Up the Activity - 10 Minutes

- Have participants imagine they are on a backcountry trip and their leader has selected a campsite 50 feet from a stream. Your group has learned about the criteria for proper campsite selection. Given what they know, how will they communicate with their leader concerning this problem?
- How will group members prepare their tent sites? Will they remove rocks, twigs or leaves? What steps can be taken to minimize the impact of selecting and using a tent site?

Alpine Area Scenario

Directions

Read the scenario below and complete the activity.

Answer the questions below.

Imagine your group is on a backcountry hike in an alpine area. You have arrived at the location illustrated on the drawing. Your group has decided to camp here for the night. You can tell from the number of fire rings, log benches, and numerous trails that others have camped here often. The group leader has suggested that everyone camp in the well-used areas near the fire rings and avoid the surrounding area that shows little or no impact.

Four members of the group have suggested the group camp in the small meadows next to the stream. What should you do?

Activity

Using the dots for tents, each group member should place their tent in the location they think is best for camping.

Discussion

1. List the reasons for your choice and be prepared to defend them with the whole group.
2. Is camping near the stream okay? Explain your reason.

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Pack it In, Pack it Out:

A Leave No Trace activity exploring trash disposal

What Your Group Will Learn

After participating in an activity designed to study trash disposal in the backcountry, group members will be capable of:

1. describing Leave No Trace methods of trash disposal.
2. identifying degradable and non-degradable trash.
3. describing the social impacts of litter and methods of reducing trash in city landfills.

Participants will imagine they are cleaning up a previously used campsite. After scouring the campsite for trash, they will evaluate the effects of trash on animals, the effectiveness of burning trash, and differences between degradable and non-degradable trash.

Materials and Preparation:

Materials

- Bag of trash: empty pop cans, foam cup, aluminum foil, gum wrappers, plastic six-pack holder, graham cracker box, twist tops, others.
- Blind folds.
- Smelly foods: BBQ sauce, oranges, onions, others.
- Odorless food: carrots, celery, others.
- Samples of partially burned trash: melted bottle, pop can, plastic six-pack holder, foil. You will have to plan ahead and search old fire sites to find burned items.

Preparation

- Go through and select garbage from your home and prepare it for use as examples. Wash and clean pop cans, etc..
- Before the group arrives, hide trash in obscure places. Trash should be visible, but not blatantly so.

Grabbing Your Group's Attention

Set the stage for the activity when all the participants arrive. Ask them to visualize that they have hiked ten miles into the backcountry and have just arrived at the first night's campsite. Your group will be at this campsite for two nights. Previous campers have left the site full of trash. Send the kids on a trash hunt to clean up the site. Give the group five to fifteen minutes to locate as much trash as they can.

Ask the group, "What should we do with all this trash?" Possible answers may be: burn it, bury it, and pack it out. Have the participants vote on which option they think would be the best. They should be able to give reasons for their choices.

Steps for Teaching the Activity - 30 Minutes

How Smart is Your Smeller?

- Ask group members how they found the trash. What senses did they list? (Most likely participants depended on their eyesight.) Ask the group how animals find their food. Explain that most animals have a much keener sense of smell, and often better eyesight, than humans. Tell the participants they are going to take the "smell" test.
- Have participants close their eyes. Hold the various food objects - one at a time - under each participant's nose. Have them identify each item. Repeat until all participants have had a chance to test the foods.

Time Out for Discussion

Lead a discussion about animal's use of smell to find food. Use the analogy of a dog burying a bone and using smell to find it later. The same occurs when animals find food that was buried near a campsite. The smell of food is what attract bears to campsites.

Discuss the dangers of having animals in campsites. Also discuss dangers to animals dependent upon human food, including problems with digesting human food and packaging. Remember that these animals are wild and a potential danger to human life. When animals become dependent on human food, they must often be destroyed.

Campfire Trash

Have participants divide their trash into burnable and nonburnable items. Bring out the partially burned items you have collected for your activity and explain that not everything burns. Some items require a very hot fire and take a long time to burn.

Time Out for Discussion

What happens to these items when you put them into a campfire? Does everything turn to ash?

- Show examples of items that do not burn to ash, i.e., foil linings, cans, and glass.
- Burning trash puts odors into the air that can attract animals and flies to a campsite.
- Many places have fire restrictions that do not allow open campfires. Campers cannot always depend on burning as a trash disposal option.

Is That Trash Temporary?

1. Have the participants divide the trash into degradable and nondegradable piles. Define "degradable" if necessary.

2. Have the participants explain why they divide the trash the way they did. Have them re-adjust the piles if necessary.

Time Out for Discussion

How long does trash last in the outdoors?

Ask group members to guess how long different kinds of trash last in the outdoors. For example, it takes about 200-400 years for an aluminum can to degrade. A cigarette butt takes 2-5 years, and a banana peel may take 3-5 weeks.

Wrapping Up the Activity - 10 Minutes

- Discuss what choices could have been made at home when packing to eliminate bringing some of the non-degradable items.
- What choices can you make in your everyday life to eliminate the amount of trash in your city's landfill? Explain that non-degradable items are a good choice when they can be recycled many times.
- Have the group make a list of things they are already doing, and pledge to start doing, to make a difference for the environment.

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Properly Dispose of What You Cannot Pack Out:

A Leave No Trace activity exploring human waste disposal

What Your Group Will Learn

After participating in an activity designed to study backcountry waste disposal, group members will be capable of:

1. describing why catholes are a good way to dispose of human feces.
2. selecting an appropriate cathole site.
3. digging a cathole of the proper dimension.

Participants will explore the impacts created by improper disposal of human waste and ways to properly dispose of human waste.

Grabbing Your Group's Attention

Bring in your two jars, one containing just soil and the other containing soil and decaying food scraps, leaves or grass clippings. Allow the participants to observe the jars. Discuss what the jars demonstrate about the natural process of decomposition. Organic material such as food, leaves, grass clippings and feces decompose into soil. Explain that the concept of decomposition will be explored later in the activity.

Next, ask the group members if they would use their yard as a bathroom. Why or why not? The following activity will help answer those questions.

Steps for Teaching the Activity - 20 Minutes

The Paper Chase

Distribute toilet paper and have participants tear into individual squares. Each square represents the amount of toilet paper someone would use in one day. If you conduct this activity outdoors, then distribute small rocks for paperweights. Have the participants scatter their pieces of toilet paper

around the area in which they are gathered, making sure the paper is visible. Have them stand back and view the area. Tell the participants that each piece of paper represents used toilet paper or the deposit of human waste along a trail or on the perimeter of a campsite.

Time Out for Discussion

What is the reaction of the group members to this scene and why?

What can people do to dispose of their toilet paper and human waste in a less visible and sanitary manner?

Catholes

Explain to the group that digging a cathole is one way of properly disposing of human waste. Distribute and discuss the information sheet “Catholes: Proper Disposal of Body Waste.” Practice digging a cathole.

Note: Before doing this activity, find a spot for digging that will not be harmed, such as a sandbox, sand play lot, or bring in a box of sand to your meeting.

- Have one group member demonstrate digging a cathole using a garden trowel while others watch
- Have participants break into pairs to practice digging a cathole.

Time Out for Discussion

What if they do not have a garden trowel? What other tools could you use to dig a cathole?

Brainstorm other ways to dig a hole. Use a rock, stick, boot heel. Practice using these tools to dig a hole.

Other Options

There are other ways to get rid of toilet paper without burying it or leaving it in the backcountry. Have group members create a plan for how their group will dispose of toilet paper in the backcountry. Burning it with a lighter right after use is not an option; this could cause a fire. One option is to deposit the toilet paper in a small sealable plastic bag and pack it out with the other camp garbage. Some areas may require that all feces and toilet paper be packed out. Always check with the land management agency if there is a question.

Wrapping Up the Activity - 10 Minutes

Have group members brainstorm why proper disposal of human waste in the backcountry is important. The leader should add ideas not mentioned by the group. Discussion should center around decomposition, pollution of water sources, spread of disease, disruption of wildlife, and the negative implications of someone finding human waste.

Catholes: Proper Disposal of Body Waste

Information courtesy of the National Outdoor Leadership School (NOLS)

Perhaps the most widely accepted method of backcountry human waste disposal is the cathole. The advantages are:

1. they are easy to dig
2. they are easy to disguise after use
3. they are private
4. they disperse the waste rather than concentrate it (which enhances decomposition).
5. it is easy to select an out of the way location where you can be certain no one is going to casually encounter it.

Selecting a Cathole Site

1. Select a cathole site far from water sources, 200 feet (approximately 75 adult paces) is the recommended range.

2. Select an inconspicuous site where untraveled by people. Examples of cathole sites include thick undergrowth, near downed timber, or on hillsides.
3. If camping with a group or if camping in the same place for more than one night, disperse the catholes over a wide area; don't go to the same place twice.
4. Try to find a site with deep organic soil. This organic soil contains organisms which will help decomposes the feces. (Organic soil is usually dark and rich in color.) The desert does not have as much organic soil as an alpine area. (See Digging a Cathole below.)
5. If possible, locate your cathole where it will receive maximum sunlight. The heat from the sun will aid in decomposition.
6. Choose an elevated site where water would not normally "pool" during runoff or rain storms. The idea here is to keep the feces out of water. Over time, the decomposing feces will percolate into the soil before reaching water sources.

Digging a Cathole

1. A small garden trowel is the perfect tool for digging a cathole.
2. Dig the hole 6-8 inches deep (about the length of the trowel blade) and 4-6 inches in diameter. In a hot desert, human waste does not biodegrade easily because there is little organic soil to help break it down. In the desert, the cathole should only be 4-6 inches deep. This will allow the sun and heat to hasten the decay process.
3. When finished, the cathole should be filled with the original dirt and disguised with native materials.

A Note About Urine

Urine does not hurt plants and soil directly. Sometimes, the salt in urine may attract wildlife. Animals can defoliate plants and dig up soil to get at the salts. It is best to urinate on rocks and in places that will not attract wildlife.

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Leave What You Find:

A Leave No Trace activity exploring natural settings

What Your Group Will Learn

After participating in an activity designed to study the value of leaving backcountry resources in their natural state, group members will be capable of:

1. describing the characteristics of a cultural resource.
2. discussing what happens when cultural resources are removed from a site.
3. listing at least three ways of enjoying cultural resources without taking them home.

Your group will imagine themselves as part of a futuristic science mission returning to Earth to uncover the secrets of our planet's ancient inhabitants. Participants will try to construct a picture of a vanished society based upon the objects they find.

Materials and Preparation:

Materials

- Old camping items such as a tent peg, old frying pan, a piece of rope, burnt wood, blackened rocks, a child's toy, an ax, and a bullet shell. If doing this activity inside, then you will also need a large sheet.
- Have one object per person.

Preparation

- Scatter artifacts (camping items) in an area away from the view of the group (preferably outside), and dump trash in one place. If one is doing

this inside, use a large sheet to designate an area of past civilization and scatter artifacts on top of the sheet.

Grabbing Your Group's Attention

Explain to participants that they are traveling in the year 2472 on a Star Trek-like spaceship. They are on a science mission to find out how earthlings lived hundreds of years ago. Two different science teams will visit Earth. What will they find?

Steps for Teaching the Activity - 30 Minutes

Beam Me Down

1. Break the group into two science teams. Explain that the two teams will take turns visiting the planet. One team will “beam down” while the other waits inside.
2. Have the first team view the objects and site without picking up the artifacts. Tell them to remember their initial impression of the site and be able to describe what the people that lived here were doing.
3. After viewing the site, have each person in the first team pick up one of the objects and hide it so it is not visible. This leaves only half the objects to tell the archeological story when the second team arrives.
4. Beam down the second science team, and have them look at the site and the remaining artifacts. Have each person from this team pick up an artifact. Tell them to remember their initial impression of the site and be able to describe what the people who lived here were doing.

Time Out for Discussion

1. Have both teams sit down together. Ask the second team to describe their impression of the site and past civilization.

What did they learn about this past culture based upon the artifacts they found?

2. Have the first team show the artifacts they removed from the site. Ask the first team to describe their impressions of the site and civilization.

What did they learn about this past culture based upon their evaluation of the site when all the artifacts were present?

Go back to the site and discuss what later explorers might think about this site.

What impressions would they have now that all the artifacts are gone?

How is the value of the site - and the backcountry - changed when all artifacts are removed?

How does this activity help participants understand the efforts of today's archeologists?

Wrapping Up the Activity - 30 minutes

- Have each person relate the object they found on their science mission to something that might be found on public lands (from Native Americans or pioneers). Have the group summarize why it is important for people to leave what they find. Clarify the difference between objects of historical value and common trash or debris. If necessary, remind people that it is against the law to remove or destroy cultural resources.
- Talk about what people do with artifacts when they take them home. Generally the artifact sits on a shelf or in a drawer. How much pleasure does it bring when it is removed from the site? Have the group brainstorm ways to enjoy and learn from an archeological site without taking the artifacts home.
- Discuss how the principles of Leave What You Find applies to plants, animals, and the outdoor setting in general. Picking flowers, removing antlers or petrified wood, cutting tree branches, building lean-tos and chairs, moving rocks and stumps, carving on trees or stone, and digging

tent trenches are all examples of ways people detract from the natural outdoors.

Additional Activities

- Visit an archeological site. Discuss what might have been found there 1000 years ago, 100 years ago, 10 years ago.
- Take a garbage can and tip it over. What do the contents tell you about the people? Which contents are likely to remain unchanged for hundreds of years? What will people in the future think about our culture when they examine our garbage?

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Minimize Use and Impact of Fires:

A Leave No Trace activity exploring fires and stoves

What Your Group Will Learn

After participating in an activity designed to study various options for fire, group members will be capable of:

1. determining if a campfire is a necessary component of backcountry camping.
2. assessing what areas can ecologically or aesthetically withstand another campfire with minimal impact.
3. building minimum impact fires in both high use and remote areas.

Participants are going to compare how fast they can heat water on a camp stove, campfire and a mound fire. They will then assess the value of each cooking method.

Materials and Preparation

Materials

- A backpack stove, fueled and ready.
- Three small pans for heating water.
- Water jug.
- Firewood - small to large sizes.
- Mineral soil for mound fire.
- Ground cloth or plastic garbage bag to gather soil.

- Enough unscarred rocks to build 1) a traditional campfire ring and, 2) for a base for the fire pan.
- Fire pan (metal garbage can lid, oil pan, or other fire pan substitute).
- Chocolate mix and cups for drinking.

Preparation

- Practice building a mound fire prior to the meeting so you are familiar with the process.
- Scatter the unscarred rocks and firewood over the surrounding ground.
- Place the soil for the mound fire nearby.

Grabbing Your Group's Attention

Explain to the group that there are three ways to prepare food for camp meals: pre-made cold meals, meals cooked over fires, or meals cooked on a camp stove. Group members are going to compare the values of stoves and fires when making hot chocolate. But first they are going to help you demonstrate how to build a true Leave No Trace fire.

Demonstrate how to build a mound fire. Follow the directions for building a mound fire. Use group members to help you gather soil, firewood, and clean up when you are through. Help participants understand how a properly build mound fire leaves almost no trace of fire. The entire process of building the mound fire, extinguishing the fire, and cleaning up should be limited to about 15 minutes.

Steps for Teaching the Activity - 30 Minutes

The Heat is On

Participants are going to compare how fast they can heat water on a camp stove, a fire built using a fire pan, and a traditional campfire. After heating the water and making their chocolate, group members will attempt to remove all evidence of the fire (e.g. traces of ashes, dirt, firewood, etc.). This process will help participants think about the advantages of stoves, mound fires, or fire pans over traditional campfires.

Explain to group members that they are going to conduct an experiment to demonstrate the pros and cons of fire use in the backcountry. Divide the participants into three groups. Each group will:

1. Prepare a fire source
2. Boil water and make hot chocolate
3. Clean up the site so no one can tell they have been there.

Ask one group to use a stove, one a fire pan, and one a new rock-ring fire. Have one person serve as time keeper for each group to track how long it takes to prepare the chocolate and clean up the site.

Note: It will be necessary to supervise the groups as they light the stove and construct the campfires from the materials you have provided.

Time Out for Discussion

Leaving No Trace does not simply mean putting out the fire and cleaning up the trash. There should be no evidence that the fire ever existed. Here are points to remember when supervising and discussing the activity:

- Make a special challenge to Leave No Trace.
- Is the ground scarred?
- Is there evidence of charred wood? All campfires require crushing coals to soaking with water to eliminate fire danger, and disposal of the ash (even fires built in existing and properly located fire rings should be cleaned).

- Are there scarred rocks?
- Is soil noticeably disturbed in and around the cooking site?

Which method of boiling water was fastest?

The stove will most likely be the fastest method of boiling water. Fires require more preparation time, especially if proper care is taken to Leave No Trace.

Which method would the group prefer if they were very hungry, it was raining, or they were camped on rocky terrain where a fire was impractical?

Which problems arose during cleanup? How successful were the fire builders at leaving no sign whatsoever of their fire?

A true Leave No Trace fire should leave virtually no sign of its existence. Did the fire builders meet this standard? Ease of cleanup will generally follow this order:

- Easiest: stove. Stoves require virtually no cleanup when used properly.
- More difficult: fire pan. The pan fire, set on rocks or some other suitable surface, will not damage the land, but will still require disposal of the ash.
- Most difficult: traditional rock fire ring. Traditional fires will scar the surface upon which they were built, requiring rehabilitation of the fire site. These fires are usually built with rocks which become permanently scarred. Did the group take the time to wash soot off the rocks?

Wrapping Up the Activity = 15 Minutes

Your group has had the opportunity to experience and discuss the benefits and procedures for building different types of fires. How well have they learned to minimize their impact with fires?

Summarize the advantages and disadvantages of campfires and backpacking stoves.

- Can the group describe the preferred techniques for building a fire in high-use areas?
- What are some of the no-trace fire building practices for pristine areas?
- What are some ways to enjoy the night without a campfire? (Stars more noticeable, might hear small animal sounds more easily...)

Mound Fire

Construction of a mound fire can be accomplished by using simple tools: a garden trowel, large stuff sack and a ground cloth or plastic garbage bag. To build this type of fire:

Collect some mineral soil, sand, or gravel from an already disturbed source. The root hole of a toppled tree is one such source. Lay a ground cloth on the fire site and then spread the soil into a circular, flat-topped mound at least 3 to 5 inches thick. The thickness of the mound is critical to insulate the ground below from the heat of the fire. The ground cloth or garbage bag is important only in that it makes cleaning up the fire much easier. The circumference of the mound should be larger than the size of the fire to allow the inevitable spreading of coals. The advantage of the mound fire is that it can be built on flat exposed rock or on an organic surface such as litter, duff or grass.

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Additional Activities for Younger Students

Suggested Age Group: 6-11.

1. Activities for Minimum Impact
2. Stargazing By Candlelight
3. Silent Hike
4. Singing For Wilderness
5. Personal Wilderness
6. Hidden Word Puzzle
7. A Day With A Wilderness Ranger
8. Imagine A Wilderness

Activities for Minimum Impact

Use some of these ideas for activities to help youth understand LNT concepts and some of the values of wilderness.

1. Create an “outdoor good manners” coloring book.
2. Do minimum impact problem solving.
3. Visit a sand box or a bare dirt slope. Create a hill with a trail and switchbacks. Water with a sprinkle can or hose. Repeat after cuts have been made in the switchbacks. Discuss the results.
4. Participate in a wetlands or meadow restoration project.
5. Visit a construction site to see what is done to prevent erosion.
6. Using a map that has contours, scale, vegetation, waters sources and trails, design your own campsite. Compare and discuss with others.
7. Adopt a trail.
8. Practice pitching and striking tents, discuss the impact the tent would have on grass if the tent stayed in one place for a long time.
9. Take a field trip to an outdoor equipment store to look at equipment and dried food choices.
10. Have a tasting party. Compare prices and tastes between supermarket and dried food choices.
11. Learn How to use a portable cookstove safely.
12. Create a book of games and activities that will have minimum-impact.
13. Learn how to dehydrate foods.
14. Make a minimum-impact board game.
15. Make a video.

Stargazing By Candlelight

Conduct a stargazing session to illustrate how unimportant a campfire is to the enjoyment of the evening. Light a candle or use a flashlight to view your star chart with (a star chart is available at many book and outdoor stores).

ACTIVITIES

- Make a game out of finding the constellations.
- Make up your own names for the constellations or form your own from the patterns in the stars.
- Notice how much brighter the stars are out in the wilderness without the city light competing with them. Notice reflected city lights on the horizon invading the wilderness nights.
- Point out that a campfire is similar to city lights, and the view would be diminished if a fire were to be lit. When people have campfires they often miss out on the magic of the stars because all their attention is focused on the bright, hypnotic fire.
- Hold a discussion about all the potential impacts a campfire can have on the wilderness environment.
 - cut and scarred trees
 - if the wood were not burned what would it be used for? nutrients, nests, returned to food chain...
 - charred rocks
 - fire-pits attract garbage
 - smoke
- Are there any low impact ways of having a campfire?

Silent Hike

Have your troop hike for half an hour to an hour without talking or making noise.

Have them identify all the animal or bird sounds they hear. At the end of the allotted time, sit down with them and discuss the sounds they heard. Discuss anything else they noticed while they were being quiet. Who heard the most sounds?

Discussion Ideas:

What city sounds blanket out sounds of nature?

Why do people visit wilderness?

How can being quiet make your visit to the wilderness even more special?

How can it enhance the experience of others?

Singing For Wilderness

Many songs have been written recently which have an environmental theme. Music can get across environmental messages, can inform and influence attitudes about issues.

The No Trace Song (see next page) was written by a group of backcountry rangers. Written to a well-known and simple tune, its message about minimum impact hiking and camping is clear and direct. Sing the song, make up your own verses and messages.

Invent your own wilderness or environmental songs. Songs could be about a specific area, an issue, a favorite animal, or your general feelings about wilderness. Use an existing tune and put new words to it or make up a new tune. Share the song with family, friends, and other students.

Look for songs with environmental messages. Look for harmful environmental messages, as well as upbeat, hopeful messages. Look for those that seem to be calling for action.

Describe the ways, if any, in which you believe music and other art forms influence people's attitudes. In what specific ways, if any, do such art forms affect people's attitudes toward the environment?

The No Trace Song

(to the tune of Row, Row, Row Your Boat)

Sack, sack, sack your trash
Put it in a bag
Pack it out upon your back
'Cause leaving it's a drag

Sniff, sniff, sniff the flowers
Leave them where they grow
Endangered plants you pick today
Your kids may never know

Camp, camp, far away
From the fragile shore
And when you do you'll save the lake
It's clean water we're working for

Cook, cook, cook your food
On a back pack stove
Save the snags and save the trees
'Cause wilderness is gold

Dig, dig, dig a hole
About six inches down
When nature calls, bury your waste
And leave it underground

Leave, leave, leave no trace
With your camping gear
'Cause no one, no one in the woods
Wants to see that you've been here

Think, plan, and be aware
In nature's fragile place
In wilderness we're visitors
Protect this unspoiled space

Personal Wilderness

OBJECTIVES

1. To increase personal self awareness of wildlands.
2. To provide participants an opportunity to investigate their own feelings about wildlands.

PROCESS

1. The facilitator introduces the activity and distributes materials.
2. Participants are instructed to find a comfortable position and remain quiet for about a minute.
3. The facilitator instructs participants to spend a few moments thinking of a real or imagined area of wildland where they would feel comfortable.
4. Participants are next instructed to name that area and draw a picture depicting the essence of that area using crayons, etc.
5. Each participant explains their picture to the group using the first person:
“I am such and such wilderness, wildland,.. etc.” Members of the group may ask questions for clarification.

DISCUSSION QUESTIONS

1. What would you include in your personal definition of wilderness?
2. What does wilderness provide for people?
3. What does wilderness provide for nature?
4. How would you treat and manage a wilderness?

TIME REQUIRED

Forty-five minutes.

MATERIALS

1. Blank sheet of paper for each participant.
2. Colored pencils, felt-tipped markers, or crayons.

Hidden Word Puzzle

Circle the wilderness words and phrases that you find and check them off on the following page.

P R E S E R V A T I O N M R E T A W Z
R G F O A M P A D S U Y A S E F L E I
I N Y L O N E A E N T D E L O K F U M
M I N I N G R U M P F U R A E Z A R G
I H H T E R I F G N I N T H G I L L N
T S I U A M F O T O T C S F N H F N I
I I G D N Z L R K N T R D I I B A D P
V F H E W T A C E C E S W K K J C E M
E O L E I I R E O E R T I L C C U L A
R R I T L N U S X G S N L G A O B E C
E E N I D S T O K A G E D N P N E M T
C S E S L E A F C S B L E I E G S M C
R T T P I C N N A S P I R T S R I A A
E B N M F T G A P T I G N A R E N R P
A S U A E S K T K O L A E O O S B T M
T E K C I P S U C V A R S L H S V N I
I L R E G N A R A E Y F S F F O S U W
O B F H O R S E B A C K R I D I N G O
N P A C K I T I N P A C K I T O U T L

WILDERNESS
HUNT
UNTRAMMELED
GAS STOVES
SOLITUDE
AIRSTRIPS
PRESERVATION
FLOATING
LOW IMPACT CAMPING
OUTFITTERS
TRAIL
FREE CAMPSITE
CONGRESS
FORCES OF NATURE
MAP
PRIMITIVE RECREATION
FOREST
BACKPACKING
LAKE
HIKING
STREAM
HORSEBACK RIDING
GRAZE
NATURAL FIRE
TENT
LIGHTNING
NYLON
WILDLIFE
FRAGILE
MINING
WATER
FISHING
RANGER
HORSE PACKING
INSECTS
PACK IT IN PACK IT OUT
ALFALFA CUBES
PICKET
FOAM PADS
HIGHLINE
HUMAN WASTE

A Day With A Wilderness Ranger

At the crack of dawn, Carol wakes up without an alarm clock. Although working without stock on this trip, she is still running on mule time. A cup of coffee and the cold mountain air complement the beauty of sunrise. Carol is a Wilderness Ranger in the Bob Marshall Wilderness.

After a quick breakfast cooked over a backpack stove, Carol breaks camp, packs up and heads for the trail. The day's work begins with hope for a radio check in. Often the hand held radio does not work in the mountains because of the terrain or severe weather.

Today, however, the radio works fine. Carol calls in that she hopes to be at camp ten miles down the trail by evening. Between her and that evening camp are many logs to saw, water bars across the trail to clean, and litter to pick up.

Carol has hardly walked a quarter mile when she reaches down to pick up a gum wrapper. Carol's trained eyes rarely miss even the smallest piece of trash. She pockets the wrapper which she will later add to her ever growing trash bag. Her backpack never seems to get lighter no matter how much food she eats.

About two miles, four sawed logs and six water bars down the trail, Carol comes across the first people she has seen since yesterday morning. A small group of backpackers is just finishing breakfast. They seem to have a clean camp although it is a little close to the trail for her liking. After a quick greeting, and answers to questions about trail conditions and fishing, Carol is on her way again.

While crossing a small stream, Carol slips on a wet rock and finds herself sitting waist deep in some very cold water. She is happy not to be hurt and even happier no one was around to see her clumsy splashing. She quickly changes into a dry uniform.

Next stop lunch. Carol planned on stopping to eat near a campsite which needs cleaning. Her boss had also asked that Carol fill out an inventory form for the campsite. She finds the campsite without any problem. At the

campsite are an outfitter and his guests and horses, who have stopped for lunch. A few of the guests are obviously on their first wilderness trip.

They are surprised to see a woman walking alone in the middle of the Bob Marshall Wilderness.

Carol weathers with a smile some good good-natured kidding about a single woman running around in the woods. She explains the campsite inventory she is working on. The outfitter and his guests are impressed by the inventory process and job of a wilderness ranger. They are also impressed with her outdoor skills. Carol leaves after lunch feeling that these people appreciate the work she does and respect her, because it's not an easy job.

At the top of the pass, Carol is greeted by the sight of a nasty thunderstorm coming her way. She had hoped to take a short break after climbing up twenty six switchbacks. But now it looks like a race with the thunderstorm to her evening camp. She loses.

Carol puts up her tent ten hours after starting out in the morning. Her rain gear has kept her reasonably dry. The thunder and lightning were nothing new, and the prospect of a cozy tent and sleeping bag makes the weather a little less severe. The last obstacle between Carol and her camp is a fresh, steaming pile of bear scat. Although grizzlies have never bothered Carol, the fresh tracks and scat cause her to stop and think. She likes the fact that grizzly bears still roam wild in the Bob Marshall.

Bears are just another part of the wild country, which Carol is very fond of. For a special few, being a wilderness ranger is the best job in the world. The pay isn't great. The hours are long. The working conditions often uncomfortable and dangerous. But for Carol all of the drawbacks are easily outweighed by the benefits.

For now Carol looks forward to a hearty supper, a few pages of writing in her daily journal and a comfortable night's sleep. The trail continues on from camp and tomorrow promises to be another fine day.

Adapted with permission of the Wildland Institute, from the
Wilderness Management Exercises and Activities for Fifth Grade Students publication

Imagine A Wilderness

Spend a few moments and think of a real or imagined wilderness area where you would feel comfortable.

1. Describe your area using words or phrases. What do you see, hear, smell, feel?
2. How would you use this wilderness, what could you do or experience there?
3. How could you make sure that your wilderness would be preserved for the kinds of things you want to do or see there?

Activities For Older Students

[Suggested Age Group: 12-18]

1. Packing Light
2. Backpacking Problem Solving
3. Project Leave No Trace Principles of Low Impact Wilderness Recreation
4. Choosing a Wilderness Campsite
5. Wilderness Management: Five Situations For Role Playing
6. Dishwashing With 1 Liter of Water ... or Less
7. Fires or Stoves?
8. Campsite Selection
9. Wilderness Ranger Camp Check
10. Solitude Sit
11. Wilderness Research
12. Work For Wilderness: Make a Poster
13. A hole in the Ground You Can Move
14. Nature Scavenger Hunt

Packing Light

Time Required: Thirty minutes.

Materials: Paper and pencil.

OBJECTIVES

1. To help participants determine essential and nonessential items for a backpack trip.
2. To teach participants the advantages of different types of equipment.

PROCESS

1. **The setting:** There is a problem in the Larch Lakes area of the Pine Tree Wilderness. It seems that groups using the area tend to camp too close to the lakeshore and leave a lot of garbage behind. There are five (or however many groups there are) different lakes in the area. We need volunteer Wilderness Rangers for each of the lakes to promote our minimum impact camping ideas.

Since this is the Wilderness Ranger's first backpack trip, each group will help the Ranger assemble the necessary equipment. While at the lake, the Wilderness Ranger is called upon to search for a lost hiker. The Ranger must now decide which items to take on the search and rescue effort. The terrain is rugged and the ranger may have to be out overnight. Now they must decide which of the items are truly essential to survival.

Another option would be to have the participants research associated prices and determine the cost of outfitting their volunteer Wilderness Ranger.

2. **Divide the class into groups of five.** One person out of each group will be chosen as the spokesperson and volunteer Wilderness Ranger. The groups discuss and decide what items to pack for one person for one (maybe more) night(s). That person will explain to the class why they decided on their list of necessary items. Groups could also be required to prioritize (1, 2, 3...) the items.

3. The participants submit their calculated backpack weights (calculated from attached list) and are scored accordingly.

20-30 lbs.	Too Light	Forget something?
40 lbs.	Just Right	Enjoy yourself.
50-60 lbs.	Too Heavy	Way Too Much!

Discussion Questions

1. Which items did you leave behind? Why?
2. Which materials are lighter?
3. Which items will help you minimize your impacts on wilderness?
4. Will you survive if you get lost in a rainstorm for six days?
5. Which of the items are truly essential for survival?

Item Weight (Pounds)

Nylon Tent	4
Nylon Tent with rainfly.....	5
Canvas Tent.....	25
Canned Food.....	8
Dried Food	4
Iron Skillet and Plate.	7
Stainless Steel Cooking Set and Cup	3
Eating Utensils.....	1
Foam Pad.....	2
Therma-Rest pad	2
Army Cot.....	12
Polyester Sleeping Bag	4
Down Sleeping Bag.....	3
Cotton Sleeping Bag	6
Metal Bucket	3
Nylon Collapsible Bucket	1
Backpack with Steel frame	10
Backpack with Aluminum Frame.....	4
Clothes.....	5
Raincoat	2
Backpack Stove.....	1
Flashlight	1
Matches, Firestarter, First Aid Kit, Knife.....	1
Map and Compass.....	1
Water and Water Bottle	1
Water Filter.....	2
Trowel and garbage bag	1
Rope	1
Light Camp Shoes.....	1
Flashlight.....	1

Your Total: _____

Backpacking Problem Solving

1. Your troop of 6 Scouts and 2 adults has a backcountry permit for the group campsite at Indian Bar (a 10 mile hike in). When you arrive at Indian Bar the group site and the three other tent sites are occupied. What information do you still need before making a decision? Given this information, what would you do and why?
2. Your group of 11 scouts and 3 adults want to go backpacking as a group in Glacier Peak Wilderness for three nights. How will your troop resolve the 12 person group limit, yet keep everyone happy with the decision (including the ranger).
3. Ten girls who have received training in Leave No Trace camping skills have been asked to program aide at a Junior encampment at a council-owned site with platform tents and cabins. What Leave No Trace camping skills can they teach the Juniors to assist them in developing a Leave No Trace camping ethic?
4. Your troop has been trained in minimum impact camping. You are camped along a river in a National Forest Campground. During dinner your troop observes the family in the adjacent site. Mom is breaking dead limbs off trees for firewood, Dad is doing dishes in the river, a bouquet of wildflowers decorates their table, the daughter is carving her initials in a tree, the son is cleaning fish by the water spigot, and their dog is barking at a squirrel he has chased up a tree. Should the adult troop leaders say something? Should the Scouts? What can your troop do?
5. Due to a washout on the trail your troop will not reach the planned campsite before dark. What steps should your group take to select an emergency campsite? The next morning how will you disguise the site?

Project Leave No Trace Principles of Low Impact Recreation

1. Plan ahead and prepare.
2. Camp and travel on durable surfaces.
3. Pack it in, pack it out.
4. Properly dispose of what you can't pack out.
5. Leave what you find.
6. Minimize use and impact of fires.
7. Minimize noise and visual intrusion.

Decide which of the above principles apply to the following statements (more than one principle may be correct.)

- a. Soft-soled shoes should be worn around the campsite to reduce impact.
- b. Portable stoves should be used.
- c. Repackage food before the start of the trip.
- d. Avoid camping in fragile or damp mountain meadows.
- e. Use existing fire rings.
- f. When hiking off-trail, spread out and walk abreast.
- g. Bury toothpaste spit.
- h. Carry out all garbage, toilet paper, and used sanitary supplies.
- i. Urinate on a rotten stump, log or rock.
- j. Walk through rather than around muddy places on the trail.
- k. Camp on snow, ice, sand, gravel, or rock when possible.
- l. Camp out of sight of the trail, shoreline, or meadow when possible.
- m. Carry a collapsible water container.
- n. Never cut switchbacks.
- o. If possible, walk on rocks or bare spots around the campsite or when traveling off trail.
- p. Avoid walking on abandoned or newly developing trails.
- q. Select earth-toned clothing and equipment.
- r. Avoid glass, tin cans and aluminum packaging.
- s. Strain dishwater and pack out food scraps.
- t. Bury human waste 200 feet from camp, water sources, and trails.
- u. Leave your pet at home.

- ___ w. Remove downed limbs and small rocks from the trail.
- ___ x. Avoid talking loudly or shouting.
- ___ y. Wash and dispose of wash water 200 feet from water sources.
- ___ z. Dismantle multiple fire rings in an established site, and all fire rings in a pristine area.
 - ___ aa. Don't feed the animals.
 - ___ bb. Contact the proper land management agency prior to the trip.
 - ___ cc. Cover cuts across switchbacks with downed limbs and branches.
 - ___ dd. Camp only one night in a pristine area, then move to another site.
 - ___ ee. Pick up litter along the trail.
 - ___ ff. Don't hammer nails into trees or trench around tents.
 - ___ gg. Never break limbs off trees, and use downed wood only if there is an abundance and it doesn't need to be chopped or sawn.
 - ___ hh. Wax or grease your boots well before leaving on a trip.
 - ___ ii. Clear clogged drainage dips along the trail.
 - ___ jj. Avoid using a pretty, mossy spot for a rest break.

Choosing A Wilderness Campsite

Michelle, Joe, Bill, Darcy and Lois went camping one weekend at Crystal Lake in the Glacier Lily Wilderness. They each set up camp in established sites in different locations. One campsite was within 50 feet of the lake, one campsite was adjacent to the access trail to the lake, one campsite was 200 - 300 feet away from the lake hidden in some trees, one campsite was out of sight of the trail next to the stream flowing out of Crystal Lake, and the last campsite was on a wooded hilltop within a quarter mile of the lake. Randy, a wilderness ranger happened to be traveling through the area and he looked at each camp. Randy rated the campsites from one to five on how well they protected wilderness values. A rating of 1 is best and a rating of 5 is the worst for the wilderness. From the following clues what ranking did each campsite receive and who camped there?

1. Darcy didn't camp by the lakeshore. She knew it was the worst possible campsite because plants by the shore are easily damaged by people camping on them, soils are usually wet and muddy, and people like to use those areas during the day.
2. The wilderness ranger told Michelle that camping where you are hidden from others' view is preferred to camping next to the main trail. The site on the wooded hilltop or in the trees away from the lake are well hidden.
3. Joe, Lois, and the person with the camp by the lake all went fishing in Crystal Lake.
4. Michelle was camped next to the main access to Crystal Lake.
5. Randy the ranger said camping by the stream is better than on the access trail if the campsite is away from other people (cannot be seen) and you use low impact camping techniques.
6. Randy also said that camping on a wooded hilltop 1/4 mile away from the lake was good because these sites can usually take a lot of use with little damage to ground and vegetation, and the camp was well

away from other visitors. The ranger also said that a camp secluded in the trees 200 to 300 feet from the lake was usually adequate to protect the lake and not be noticeable, and camping in the trees was also closer for enjoyment of the lake. Both camps are better than the camp by the stream, however, because the stream can be impacted easily by food scraps, waste water, and the fact that others would likely camp there again .

7. Bill tried to cook the fish he had caught that day on a campfire built with green firewood he had cut with his saw and hatchet.
8. Randy told Joe he picked the best camping site and congratulated Lois on the proper use of low impact camping skills that kept her from damaging her stream-side campsite.

THE ANSWER

Campsite within 50 feet of the Lake

Bill ranger rating - 5

Campsite next to the access trail to the Lake

Michelle ranger rating - 4

Campsite out of sight of trail next to stream

Lois ranger rating - 3

Campsite on wooded hilltop within 1/4 mile of Lake

Darcy ranger rating - 2

Campsite in trees 200 - 300 feet away from trail

Joe ranger rating - 1

Wilderness Management: Five Situations For Role Playing

The following five scenarios are role play situations which present problems to be solved by the student. The teacher should choose individuals to act in the various roles, then read the situation aloud. As students act out the situations, the teacher may insert questions or points of information which may help to expedite the role play. At the end, a class discussion should explore ideas and controversies that may arise during the role play. Follow-up activities may include further research into the topics explored.

SITUATION 1:

Minimum impact/maximum impact

ROLES: Group of friends and a wilderness ranger

SITUATION: Imagine about seven of your friends and yourself on a hiking trip in the mountain Glacier Lily Wilderness. You've left the city early Saturday morning for a two-day hike to get away from civilization and chores at home. You carry along with you your backpack, tent, food and other lightweight conveniences that will keep you somewhat comfortable in a place that does not have running water, bathrooms, electricity or picnic tables.

You and your friends started early Saturday morning and have hiked the whole day in order to get to the Wilderness with its expansive meadows, alpine trees, hungry mosquitoes, and majestic mountain peaks. You finally reach your destination, Mirror Lake, elevation 5,050 feet. This is wilderness.

As you rest and eat your trail mix, you and your friends start to look around for a place to pitch your tents. Some of your friends set up their tent next to the lake and proceed to dig a trench around it to drain off any rainwater that might fall. Some take out their hatchets and chop a few green boughs from a nearby fir tree for their beds. Another boy gathers large rocks for a campfire and chops down an old tree near the campsite

for firewood. A girl takes some trail mix out of her backpack and feeds the little chipmunks that are nearby.

Just after you set up camp and are about to get your fire started, a wilderness ranger walks into camp...

Adapted with permission of North Cascades Institute, from the Teaching For Wilderness publication.

SITUATION 2: **Hikers and Herds**

ROLES: Cattle Rancher and two backpackers

SITUATION: A rancher has a permit from the U.S. Forest Service to graze cows in a **designated** wilderness area. The rancher is moving cows up to the higher mountain meadows now that the weather has broken in the spring. Some backpackers start hiking up the same trail later that day and quickly come up behind the herd, side-stepping “cow patties” and avoiding muddy places in the trail where the cows have passed through. In the late afternoon the backpackers catch up with the rancher, Joe Mellon. Joe, still on horseback, greets the hikers.

"Yep," he says, "My grandpappy brought his cows up here in 1928 and we've been doin' so ever since. He says the area was made wilderness in 1964, and that some of his neighbors were upset that they couldn't bring their trucks into the "old corrals" anymore, but he didn't mind because he always rode in anyway."

When asked if he thinks the cows mess up the land, he says he's "seen as much change from the hikers and horse riders as from the cows."

Discussion: What causes changes to the land? What changes will be there for many years? Which will disappear? What should be done to prevent bad changes from occurring?

This scenario has been adapted from its original form.

SITUATION 3: To Bridge or Not to Bridge

ROLES: Forest Service Wilderness Manager and citizens in a public meeting

SITUATION: It is July and the snow is melting from the mountain. A group of friends decide to go on a day hike up Glacier Creek trail into a wilderness area. They start on their hike early on a beautiful sunny morning and as they go up the trail reach Glacier Creek. They easily cross the bubbling stream, stepping on rocks and logs and continue on their hike. Eventually, they get to a good look-out point and stop for lunch in the warm sun.

After lunch the hikers head back down the trail and again need to cross Glacier Creek. But by three o'clock in the afternoon the creek is much higher than it was in the morning, due to the melting snow above adding more water to the creek. The hikers are tired and don't rope up or help each other to safely cross the now-roaring creek. One by one, the hikers slowly make their way across the swollen creek. As the last person walks across the swift currents she loses her footing and slips and is carried downstream over a waterfall. She breaks her neck and is paralyzed for life.

A public meeting is held to discuss the future of the Glacier Creek Wilderness Area. At the public meeting, the wilderness manager discusses with the audience the problem of managing a wilderness area so that it remains in a primitive state. Putting a bridge over Glacier Creek would make it safer for hikers, but it would diminish how wild and primitive the landscape is. Having a bridge there would reduce the challenge to hikers. The manager points out that wilderness areas are not recreation areas, recreation is only one of the public uses which the Wilderness Act declares wilderness shall serve.

Open the public meeting with a description of the situation, then throw the discussion open to the "audience" about how "the situation should be resolved". Discuss the problems in managing an area so it looks uncontrolled, untamed, untrammled, and untouched by people.

SITUATION 4:
Fire, Fire, Fire

ROLES: Wilderness Ranger, local hunter, backpacker, timber company representative who owns adjacent land, county commissioner, wildlife biologist

SITUATION: A thunderstorm makes its way down the North Cascades Mountain Range. Lightning strikes and a fire starts just inside the boundary of a designated wilderness . The National Park Service has taken the position that fires started by natural causes inside wilderness areas will be allowed to burn, while man-made fires will be controlled.

The fire is small, the first day only 10 acres burn. Then the wind picks up and the fire begins to move deeper into the wilderness area.

Discuss and collectively decide on the management of this fire. Assume each interest's position. Evaluate all options.

SITUATION 5:
Wilderness for Wildlife?

ROLES: Hiker and Wilderness Ranger

SITUATION: In some designated wilderness areas that are heavily used, black bears have discovered hikers' food. Bears have the ability to smell about 100 times better than humans and readily smell out food stored inside backpacks. A backpacker goes out on a day hike and returns to find her tent wiggling through the meadow. A bear had smelled snack food and crawled inside. Too frightened to stay any longer, the hiker heads out without her tent, backpack, or car keys and hitch-hiked to a ranger station for help.

What should be done about the bear? Is it a safety hazard? What about the hiker who left food in the tent? Is it the Wilderness manager's responsibility to keep bears away? Is it the hikers responsibility to hang their food to keep bears away? Should metal bear-proof containers be provided at camping areas in designated wilderness ?

Dishwashing With 1 Liter of Water... or Less

This activity describes a method for a patrol or small group to wash their dishes for an entire meal using only one liter of water.

The first step begins at home. Planning is the key to clean up. The type of meal cooked, the number of pots and pans used, the amount of food cooked will all determine how easy it is to clean up.

DURING THE MEAL

Leftovers are always a problem. Careful planning will insure no leftovers and few scraps (bones, fat, etc.) which need to be carried out. Encourage each person to finish what they take. Untouched leftovers can often be placed in a metal tin and eaten later.

Immediately after the meal is cooked, put about 0.8 liters of water in a clean pot and set it on the stove to boil.

AFTER THE MEAL

Usually, two people will be responsible for the dishwashing. Typically one will wash, the other will collect the dishes, rinse and dry.

At this point, the water should be boiling.

Take a portion of the water—about 1/4 of the pot and put it in the “dishpan”. The dishpan might be a cooking pot, a fry pan, or even a clean pot.

Add soap.

This is actually a critical step. The old saying: “if a little bit does a lot of good, a lot does a heck of a lot of good” doesn’t hold in this case. Too much soap is a disaster. It’s always easy to add more soap. It’s nearly impossible to remove it. Start with several drops of concentrated dish soap. Most liquid soaps today are “biodegradable” (these should have been re-packaged into a small squeeze bottle with a spout).

Add the remaining portion of the cold water to the dishwater until it is a comfortable temperature. If it's winter time, set the dishpan on an insulator - or else it will be frigid by the end.

Start with the items closest to your mouth: utensils, then proceed to cups and plates, and finally, pots and pans.

When washing, keep all dishwater confined to the dishpan. Clean out cups and pour the water back into the dishpan. Wipe excess soap off each item before rinsing.

RINSING

The water should be kept boiling the entire time you are rinsing. Boiling water helps sterilize the dishes. It also aids in drying the metal utensils, cups, plates, pots and pans. The stove usually can be turned to "low" and still maintain a boil.

Drop the silverware into the boiling water. If the utensils are made of metal, allow them to reach the boiling temperature. If they are plastic or Teflon, you may wish to remove them after a brief dip. Extended immersion will produce interesting (albeit non functional) shapes.

The eating utensils can be removed from the pot of boiling water with the aid of a spatula, a small pair of needle nose pliers you may carry in your pack, or a "Leatherman" tool. Lay out a towel on a foam pad and place the utensils "bowl down" on the towel. If they reached boiling temperature, they will dry quickly - all by themselves. Alternatively, you may use a net rinse bag. The utensils are placed in the bag, which is immersed in the boiling water. After rinsing, the bag is spun in a circle to dry.

A potential problem occurs when a plate or pot is bigger than the rinse water pot.

What to do?

Use a cup (preferably one with a handle) to dip water from the rinse pot and pour across the plate or pot—allowing it to drain **BACK INTO THE**

RINSE WATER. Don't pour the rinse water out onto the ground to make mud pie, save that for the little kids a home.

Turn the pots upside down to dry on the towel.

Dishwashing continued... When all dishes are washed, fling the dishwater in a wide sweeping arc into the brush 200 feet from water. Rinse the dishpan. Fling the rinse water in a wide sweeping arc into the brush. Dry any dishes that need it.

And you're done. One liter of water to do your whole patrol's dishes. No mess in the campsite. Only one liter of water used (it's possible to use much less than one liter if you're in a "dry camp" environment).

WHAT TO DO IN BEAR COUNTRY

There is a popular saying: "If a needle falls from a tree in the forest, a deer will hear it, an eagle will see it and a bear will smell it." Bears have an incredible sense of smell. Special precautions must be taken when in bear country.

We recommend that all cooking take place at least 100' from the campsites. Food, garbage and scented toiletries, such as toothpaste and deodorant, should be hung well away from tents (at least 100 ft). All food particles should be rinsed into large streams before washing (this seems completely contrary to Leave No Trace ethics—but logical when you think about it—check with local ranger first). Dishwater and rinse water should also be dumped into large streams. Again, this is contrary to established practices. The logic is that in places of high bear concentration (especially Grizzly bears - as in Northern Montana, British Columbia, Alaska, the Yukon Territory) there is a low concentration of backpackers. The lesser of two evils is to put a little bit of biodegradable pollution into the water than to teach bears to associate people with food— a potentially deadly combination. If there are only small streams nearby, dig a small hole and dispose of waste water there. Many "established" campsites have provided the camper with pre-dug "grease traps." In Montana and Alaska, established sites also often have "cooking cabins" where all cooking and dishwashing *must* be done.

At the time of this writing (1994) these measures are not required in Washington, but are recommended for all conscientious campers traveling in potential bear country. They are included in this description so that you might understand and appreciate the keen sense of smell that bears enjoy (in the heart of bear country it is even recommended that every camper have a separate set of “cooking and eating” clothes that are only used during meal time, which are hung nightly in a sealed bag with the food). Nothing should go into the tent except the hiker’s sweaty body and the sleeping bag.

Fires or Stoves?

Fires or Stoves: Answer True or False to these stove and fire statements.

1. T F Fires can leave scars
2. T F Stoves work if wet
3. T F Fires are warm
4. T F Stoves leave ashes
5. T F Big logs burn best
6. T F Ring fires with rocks
7. T F Stoves are fast
8. T F Stoves are clean
9. T F Fires blacken pots
10. T F Stoves waste wood

Skilled thinking: Do you know how to build a fire that would leave your campsite as natural as if you had used a stove?

ANSWERS:

1. T Very few people have developed the skill to build a fire without scarring the land.
2. T Stoves work even after days of rain.
3. T Fires do provide comforting warmth, but in an emergency, a hot cup of water quickly prepared on a stove will help stave off a chill more efficiently. This is especially true in the event of hypothermia.
4. F Because stoves burn white gas or kerosene, they leave no ash to clean up and dispose of. Do you know how to properly dispose of ashes left behind from a fire? **Hint:** the best way is generally not to bury them.
5. F Small wood burns cleaner than big logs. Big logs, left alone, also replenish nutrients in soils and provide insect habitat vital to birds and other animals. A good rule of thumb for wood size is: “Dead, down and no bigger around than your wrist.”
6. F Although people used to teach ringing fires with rocks, rocks provide very little protection against fires spreading. Rocks simply become charred with permanent black soot and leave an ugly reminder of human presence in the wilderness.
7. T An experienced camper using a stove can have supper done before the fire builders have finished gathering their wood.
8. T Stoves keep your clothes smelling clean and make after dinner clean-up a cinch.
9. T The same soot from fires that blackens rocks will also make your pots harder to clean.
10. F Stoves do use fossil fuels for cooking, but they don’t deplete wood in heavily camped areas.

RECOMMENDATIONS

Follow these recommendations when using stoves: Clear away dry leaves and needles; check functioning before leaving home; avoid excessive amounts of fuel.

Follow these recommendations for fires: Clear away dry leaves and needles; avoid building fires under low branches, in roots, duff or old stumps; use small pieces of wood and avoid wood with excessive sap.

THREE METHODS FOR BUILDING MINIMUM IMPACT FIRES:

Pit Fire - To build a pit fire select a sandy area, such as a beach or sandy wash. Dig a shallow pit (about the size of a Chinese Wok) using a stick or a small trowel. Light a small fire inside the pit. After scattering all the cold and wet ashes away from water and the campsite, replace the sand. Camouflage the area with fresh sand and rocks, if they were there before. Rock rings are not necessary and blacken rocks permanently. They do little to prevent the spread of fires.

Mound Fire - To build a mound fire select a durable surface and make a mound of mineral soil 4-6" deep on top of a plastic tarp. Gather soil from a remote source (like the root wad of a fallen tree). Build the small fire on top of the soil. Scatter the cold ashes in the proper manner and return the soil to its original location.

Fire Pan - Fire pans can be made from many materials including garbage can lids, pizza and cake pans, or store bought fire pans. Imagine building your fire on a pizza pan. You get the idea! (Sometimes USDA Forest Service Ranger Stations will give away old fire shelters to be cut up and used for this purpose. Call and ask!)

Campsite Selection

Camp: Find the six things you should do when choosing a campsite.

1. ____ In popular areas, choose heavily-used sites
2. ____ Shorten your stay if camped at pristine (unused) sites
3. ____ Hide your campsite from the view of others
4. ____ Build tables and chairs from scattered wood
5. ____ Find campsites that won't damage plants
6. ____ Confine tents to bare areas when at heavily-used sites
7. ____ Arrive at your destination early so that you will have lots of time to look for the best campsite

Answers on next page.

ANSWERS:

1. In popular areas, it is usually easy to find established campsites. It is difficult to damage these areas further and confining your activities to these sites help prevent campsite proliferation.
2. If you choose to stay at a pristine site, realize that damage to unused areas can occur in just a day or two. Try to keep your stay short and move on.
3. By hiding your campsite from the view of others you help protect the primitive experience that brings people to the backcountry.
4. If the goal of Leave No Trace camping is to get away from civilization and leave no evidence of your presence, building structures from wood is not appropriate.
5. Always try to locate your campsite on a durable surface. Gravel areas, dry grasses and rock slabs are good examples of durable campsites.
6. When camping at heavily-used sites, you can prevent campsite expansion by confining tents and activities to bare areas. When camped at pristine sites the opposite is often true. You may have to disperse your tents.
7. Leaving time at the end of the day will ensure that you find an appropriate no trace site for your group.

Wilderness Ranger Camp Check

OBJECTIVES

1. To teach proper minimum impact camping techniques.
2. To help participants develop a good wildland ethic.

PROCESS

1. The facilitator sets up a “backcountry camp” using the following bad camping practices.
 - Trash spread around camp.
 - Campfire ring with aluminum foil in it.
 - Soap by stream.
 - Tent by stream.
 - Add your own ideas
2. The participants (deputized Wilderness Rangers) “hike” to the problem camp.
3. The facilitator carries a backpack with the following discussion items:
 - Canned and dried food
 - Lightweight stove
 - Roll of toilet paper
 - Foam pad
 - Sleeping bag (Polyester)
 - Lightweight tent (Nylon)
 - Collapsible bucket (Nylon)

DISCUSSION QUESTIONS

1. What would a Wilderness Ranger do if he or she came upon this campsite?
Have the participants pick up the trash and naturalize the fire ring.

2. Why shouldn't you use soap in the stream? How far away should you do your washing?
3. Why shouldn't you set up your tent next to the stream? How far away should your camp be?
4. What other kinds of bad camping practices have you seen?
5. What are the advantages of the equipment the facilitator is carrying?
6. What is the difference between canned and dried food?
7. If you carried along a lightweight stove, would you even need to build a fire?
8. What is the proper way to dispose of human waste?
9. Why would you want to take a foam pad?
10. What are the advantages of a polyester versus a cotton sleeping bag?
11. Would you rather take a nylon or canvas tent?
12. Why would you take a nylon collapsible bucket instead of a metal bucket?
13. How does using this equipment help you minimize your impacts?

Time Required: Forty-five minutes.

MATERIALS

1. Trash: plastic wrappers etc.
2. Campfire ring: rocks, ashes, aluminum foil
3. Soap: box or bar
4. Tent (Nylon)
5. Lightweight stove
6. Roll of toilet paper

7. Foam pad
8. Sleeping bag (polyester)
9. Collapsible bucket (nylon)

Solitude Sit

OBJECTIVES

1. To increase personal awareness of solitude.
2. To provide participants an opportunity to explore their own perceptions of the difference between wilderness and civilization.
3. To help participants understand why the words “opportunity for solitude” were included in the Wilderness Act.

PROCESS

1. The facilitator should select two areas. One should retain most of its natural qualities; for example, a wild or natural area in a wildlife refuge, city park, or vacant lot. The other site should be a highly developed area, such as, a downtown street or shopping mall. If both environments are not readily accessible, choose one site that has both wilderness and civilization qualities.
2. The participants will spend 15 minutes writing down their sensory expectations for each area.
3. The facilitator takes the participants to the two areas. The participants will spend 15 minutes alone in each area, recording actual observations.
4. Participants share with one another their expectations and observations.

DISCUSSION QUESTIONS

1. What is solitude? Do you have to be alone to experience it?
2. How did your perception of solitude change in each of these areas?

3. How were your expectations different from what you actually observed in these areas?
4. What did you perceive in either setting that appeared inconsistent or out of place with its setting?
5. Did you perceive any similarities between the wild and civilized areas? What qualities made them similar?
6. Based on your observations, why was the opportunity for solitude put into the wording of the Wilderness Act?

WILD AREA

What you expected _____ What you observed

SIGHT

SOUND

TASTE

TOUCH

SMELL

CIVILIZED AREA

What you expected _____ What you observed

SIGHT

SOUND

TASTE

TOUCH

SMELL

Wilderness Research

In order for students to gain a better understanding of and appreciation for Wilderness in their own state, this activity focuses on researching an actual Wilderness area.

Have each student choose a wilderness area and research it. Contact U.S. Forest Service, National Park Service, U.S. Bureau of Land Management or U.S. Fish and Wildlife Service Office for more information (see addresses listed in resource section).

Students should collect at least the following information:

- What is the name of the wilderness area?
- When was it designated as Wilderness?
- Describe its physical characteristics.
- How was it designated as Wilderness?
- Who was responsible for working on getting it designated as Wilderness?
- How is it managed today?
- Are there any major problems or controversies surrounding this wilderness area?

Work For Wilderness: Make A Poster

One way to educate students and the public is by making and displaying posters. Effective posters combine artwork and information in a clear and concise one-page statement. Have students brainstorm messages about wilderness and clearly illustrate the message, with words or pictures (or videotape). Have a poster contest to help students learn how to increase the visibility of an issue. Perhaps local dignitaries or agency personnel could be involved.

Some examples of messages about wilderness values which may be illustrated include:

- Wilderness is critical to the survival of many kinds of wildlife. Numerous species are dependent on wilderness, or wild, undisturbed land. Among them are the wolf, Grizzly bear, bighorn sheep, mountain goat, elk, moose, woodland caribou, mountain lion, fisher, marten, and ptarmigan. They require essentially undeveloped, remote habitat undisturbed by the continued presence of people and their works. Some of these species are on the brink of extinction and assuring their recovery requires safeguarding their wildland habitat.
- Wilderness protects watersheds and promotes high quality, stable flows of water for down-stream users. Wilderness protects airsheds, protecting places which produce clean air to breathe.
- Wilderness provides quality recreation for millions of Americans.
- Wilderness has tremendous scientific and educational value.
- Wilderness areas serve as excellent outdoor laboratories for scientists, educators, and students. From wilderness comes important information that helps us better manage our developed lands.
- Wilderness preserves an important part of our rich historical and cultural American heritage. Our nation was founded in wilderness, and the American character has been molded by it. Wilderness promotes freedom, self-reliance, and the pioneer spirit of adventure. Wilderness has inspired great art, poetry, and literature.
- Wilderness has value for its own sake, and for the species that live in it—apart from human use and enjoyment.
- Wilderness will be preserved only if Leave No Trace camping and hiking methods are practiced.
- Wilderness has value for some people even if they seldom or never go to a Wilderness area. People just like knowing it's there and

value the concept of having wild lands preserved for their own sake.

A Hole in the Ground You Can Move

Scout leaders can make an effective model of a cathole for those presentations where you're far from the woods and nature. Here's an example and illustrations of how to build a truly portable hole-in-the-ground.

Moveable Cathole: A one-inch thick piece of Styrofoam insulating board will be your “ground surface” where you will “dig” your cathole. Using a 3 lb. coffee can, trace a circle on the board. Cut the circle out and press the coffee can down into the hole. The can is the cathole, the ring of Styrofoam left over is the plug used to cover the hole. Use a coat of spray adhesive or glue to affix dirt and duff to the entire model, even the hole. You can fill the hole with dirt and “dig it out” when illustrating the method. Coat the plug with dirt, too, to allow you to show how to cover the hole when finished. You might also consider building a side view of the hole. Cut the can in half to make a cross-sectional diagram which could be mounted in a box or frame. Time to build: 15 minutes.

Nature Scavenger Hunt

Grabbing Your Group's Attention

Your group will be going on a Nature Scavenger Hunt. Rather than collecting objects, they will be listing ideas on paper. The hunt will help participants discover how much they have in common with the natural world and how the natural world influences their survival. This activity sets the stage for learning and embracing Leave No Trace principles.

Begin the activity by conducting one of the following:

- an excursion to an outdoor setting such as a park, canyon, river or forest.
- an excursion to a natural setting via a slide show, color photographs, or posters.

- a mind excursion where participants imagine their favorite natural settings.
- an excursion where participants close their eyes while you describe a natural setting.

The Activity

Give each participant a piece of paper and a pencil. Have them make three columns with the titles “Things in Nature”, “Things We Have In Common”, and “How It Helps Me”. Participants are to observe their environment physically if they are outdoors, or mentally if they are indoors. They must find objects in nature and tell how they are like that object. Make sure they consider less noticeable things such as air, soil, and sun. For example:

The Discussion

Have participants share one or more of their connections. Help them to discover that this personal connection is where a commitment to land stewardship begins. Land stewardship is the goal of the Leave No Trace program. Outline for them what they will be learning about Leave No Trace in the future.

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Pack It In, Pack It Out (#2)

Note: Arrangements for this activity must be made a week or two in advance. Find a location that is littered with garbage. For example, a roadside park, or a high school parking lot right after school. This activity can also be conducted during organized cleanup projects sponsored by groups that have “adopted” road segments or recreation sites. If you cannot find or visit a site, simulate a site at or near your meeting site.

Grabbing Your Group’s Attention

Travel to the site. Have your group observe the littered site and record in writing what they think of the situation and how it makes them feel. Present each member of the group with a garbage bag and with the challenge to make the area look more pleasant.

The Activity

Have a contest to see who can collect the most garbage in 10 minutes.

Instruct the group to use care when picking up sharp, rusty, or unsanitary waste. You may wish to have participants bring light gloves for this activity.

The Discussion

Discuss what litter is and the effects of litter in general. Discuss the effects of litter in the backcountry. Divide participants into pairs and have them devise a plan for packing out their garbage on their next trip into the backcountry. Discuss each plan. How do one-pot meals contribute to the creation of less bulk and therefore less garbage? What, if anything, can an individual do about litter of other backpackers?

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Our Natural World - Nature's Web

An activity to foster understanding of outdoor ethics.

What Your Group Will Learn

After participating in an activity to set the stage for learning outdoor ethics, group members will be capable of:

1. describing simple connections between plants and animals of an ecosystem.
2. predicting changes to an ecosystem caused by human impacts.

3. determining how to choose behaviors that protect natural resources.

Your group will play a game that will help them make connections to the natural world and understand how their behaviors can impact nature. Using a ball of string and cards that represent plants and animals, group members will construct a web of connections between all living things.

Materials and Preparation

Materials

- Cards approximately 3" x 5".
- Hole punch.
- Approximately 4 feet of yarn per person.
- 100 feet of thick string rolled into a ball.
- Paper and pencil for each person.
- Symbols, pictures, or words to represent sun, clean water, clean soil and air.
- A copy of the directions.

Preparation

- Read the entire lesson plan thoroughly. This activity will take approximately 45 minutes to complete.
- Roll up 100 feet of string into a ball.
- Have scenarios listed below available for use by leaders or by individuals.
- Follow the directions listed below in Alpine Ecosystems.

Adapted with permission of the Bureau of Land Management, Utah State Office, from the Teaching Leave No Trace, Activities to Teach Responsible Backcountry Skills publication.

Alpine Ecosystem

Write the names of the plants and animals listed in the categories below on the 3" x 5" cards, one name to a card. Punch holes in each card and attach yarn long enough to loop the card over the participant's shoulders. Distribute all the cards. If your group is smaller than 17, some group members will have two cards. If your group is larger than 17, you will

need to add plants and animals to the ecosystem. Some ideas include: berry, bear, owl, hummingbird, and grub worm.

Grabbing Your Group's Attention - 5 Minutes

Before people can decide to Leave No Trace in the backcountry, they often need to adopt reasons for caring for our natural world. This activity will help participants identify those reasons.

Have each group member, including the leader, loop their card over their shoulders. In the middle of the room place the symbols, pictures, or words that represent the sun, water, soil, and air and gather the group in a circle around these objects. Give the ball of string to one group members and explain that they are going to play a game called Equate! Relate! The game demonstrates the connections or links between plants and animals in an alpine setting and will help participants predict the effects human impacts have on plants and animals of this ecosystem.

Steps for Teaching the Activity - 20 minutes

Equate! Relate!: A game of Connections

1. Read and explain the game directions to the group.
2. Play the game
3. Do the Human Impact scenarios below.

Directions

The purpose of the game is to:

- recognize connections among plants and animals in an ecosystem.
- describe human impacts on ecosystems.

Everyone assumes the role of the plant or animal listed on their card.

Making Connections - Ball of String

The person holding the ball of string looks around the circle and finds one other plant or animal that they need or needs them. They describe the connection out loud, hang onto the string and throw the ball to that plant or animal. For example, the woodpecker has the ball of string and throws the ball of string to the pine tree saying “I need the tree to provide insects for me to eat”. The pine tree catches the ball, hangs onto the string with one hand and throws the ball of string to the ant saying, “The ant needs me to provide food”.

Play goes around the circle until everyone is holding onto a piece of string. At no point should anyone let go of the string. In some cases, animals and plants will have received the ball of string more than once and therefore are hanging on to more than one section of string.

Time Out for Discussion

Have the group observe the web of connections they have made. Discuss what the web demonstrates about connections in an ecosystem, including the human connection. Have each group member think about one item from the middle of the room-sun, water, soil, air-and then describe one connection they have to this resource. For example, the frog might say, “I need water in which to lay my eggs”.

Human Impacts on Ecosystem

Have the leader, one other person, or several people read one of the scenarios below to the group. Have the group discuss the questions at the end of each scenarios. As you discuss each scenario, have participants drop their string to show how an impact to one part of the web affects another part. For example, if a camper picks all the wildflowers in one area, what else will disappear (mice, coyote)?

Scenario One

A group of people camp on the edge of an untouched meadow because it is easy to watch wildlife. They stay for many days and leave behind a new

rock fire ring, large log benches, and newly worn trails in and around their camp.

- a. How might the scene of their abandoned campsite attract more campers to this area?
- b. If more campers come, how might their presence affect the meadow's community of life?

Answers:

- a. People are often attracted to established campsites. The remains of the fire ring benches, and trails will encourage more people to camp here.
- b. If camping use becomes too heavy, some animals will be driven from the meadow.

A large scale example of animal displacement can be seen in cities. How many wild animals like to live near people. The deer might want to drop the string.

Scenario Two

Three campers go out for an afternoon hike. They each return to camp with a handful of wildflowers to give to their leader.

- a. Why should wildflowers be left in their natural setting?
- b. How else might the campers share their love for wildflowers or their desire to present their leader with a gift?

Answers:

- a. Wildflowers should be kept in their natural setting as food for animals, so the flowers can re-seed themselves for the next growing season, and to allow other visitors the opportunity to view their beauty.

- b. The campers could take their leader to see the flowers, or they could make a drawing to give to their leader.

If wildflowers disappear, animals in the web that depend on them are in trouble. They should drop their string.

Scenario Three

A leader asks four young campers to collect wood. The campers use axes to hack at live trees and they also peel bark to help start a fire.

- a. How might these actions harm the tree?
- b. What are alternatives to cooking with fire?
- c. What might be some nighttime activities that could replace an evening around a campfire?

Answers:

- a. When bark is hacked or peeled away from a live tree, the tree is wounded. Wounds expose trees to disease and insects which harm or kill trees.
- b. Campers can cook with lightweight stoves rather than campfires, or bring prepared foods.
- c. Learn about the stars; use dark shapes surrounding the campsite to stimulate storytelling; go for a moonlight hike if the moon is bright.

The web is affected if the tree dies, For example, the woodpecker should drop the string.

Scenario Four

You have been hiking all day and stop in a campsite for the night. As you are setting up your tent you notice two tents next to the stream.

- a. How will these campers affect the animals that use this location at night to get their water?
- b. What, if anything, might you do or say to these campers?

Answers:

- a. The animals might be too afraid to come down to the river to drink. Also, camping so close to a stream could cause pollution from human waste to enter the river.
- b. This is a difficult question to answer. How will your group respond?

Those animals that depend on the stream for drinking water should drop their string.

Wrapping up the Activity- 15 minutes

How well has each person learned to protect natural resources?

- Have participants tell one new behavior they will practice the next time they go camping or hiking.
- Have participants explain how this behavior will support the natural resources (plants, animals, soils...)

LEAVE NO TRACE CERTIFICATION:

Steps to becoming LEAVE NO TRACE certified

1. Group leaders and instructors are introduced to Leave No Trace techniques, this manual, and the workshop described in the manual introduction.
2. Group leaders in turn educate their students in key LNT principles and skills using the manual as a guide.
3. Leave No Trace-trained students attend a Leave No Trace Field Check Event. Certification criteria and the general outline of the LNT Field Check Event are listed below.

Troop Equipment and Preparation

The troop should arrive at the certification event with the necessary equipment and food packed as if they were going on a three day overnight backpacking trip.

Set Up

Troops check in at a central location in the morning at the advertised time. Participants will be given a written test and sent to an assigned site to setup camp according to a given scenario. The sites are arranged to reflect each scenario, such as social trails marked with staked-down string, water symbolized by blue tarps, and all areas with fragile plants marked.

Criteria for Leave No Trace Certification

Students will be evaluated on their understanding of the seven Principles of Low Impact Recreation and the Backcountry Leave No Trace Skills outlined on this Web site.

Since backcountry situations are never static and there is never one correct way to best Leave No Trace, students will be judged on their awareness of

potential impact they could cause, and their judgment and actions in a variety of situations. Possible topics that can be addressed at the Certification Event are listed below.

1.Preplanning

- Establish Goal
- Trip Timing
- Group Size
- Food Packaging
- Equipment

2. Trails and Travel

- Preparation
- Trailed Area
- Easy Trail Maintenance
- Trailless Area
- Trail Etiquette

3.People, Plants, Wildlife

- Food and Garbage
- Plants
- Animals
- Historic & Archaeological Sites

4. Campsite Selection

- High Use Areas
- Low Use or Pristine Areas
- Moderate Use Areas
- Leave Natural

5. Health and Sanitation

- Human Waste
- Litter
- Health
- Washing Yourself
- Washing Dishes

6. Campfires and Stoves

Preplanning Ideas to Avoid Needing Fires

Minimum Impact Fires

Proper Use of Stoves

ADDITIONAL INFORMATION:

*“In the end we will conserve only what we love.
We will love only what we understand.
We will understand what we are taught.”*

-Unknown

- **A glossary of terms**
- **Leave No Trace Equipment List**
- **Leave No Trace Certification**
- **The Wilderness Act**
- **Historic Timeline of Wilderness Preservation**
- **Girl Scout Program Links**
- **Sample Itinerary Form**
- **Information Sources**
- **Literature Cited**
- **Sample Syllabi**

Glossary

Within this site are several terms that may be unfamiliar. Many are terms developed by resource and recreation managers to define conditions within our forests and parks. This glossary is provided to help clear up any confusion surrounding these terms.

backcountry - areas encompassing most unroaded, primitive, natural areas. Places where camping equipment needs to be packed in are generally considered backcountry areas.

frontcountry - areas encompassing most developed recreation areas such as campgrounds and roaded natural areas. Places where camping equipment does not need to be packed in are generally considered frontcountry areas.

durable site - a campsite or rest spot located on a surface that resists impact, such as rock slab, bare ground, sand, gravel, dry grass, or deep snow.

hardened site - an established campsite which has been used to such an extent that there is an obviously used area of bare ground, and further conscientious use will not cause more impact.

Leave No Trace - traveling and camping with care, deliberately planning and guiding one's actions so as not to harm the environment or disturb others.

impact - physical effect of recreationists upon plants, animals, air, water, and soil, as well as the social impacts visitors have on other people they encounter.

pristine - 1. of, relating to, or characteristic of the earliest condition or time.
2. remaining in a pure state: UNCORRUPTED. (Webster, 1984).

riparian - of, on, or relating to a natural course of water (Webster, 1984).

social impact - effect of recreationists upon other visitors.

social trail - unplanned trails created by visitor use, often connecting campsites to water sources, scenic overlooks, other campsites, etc.

untrammelled - uncontrolled, unrestricted, free flowing.

wilderness - 1. an uninhabited region left in its natural condition, esp.: **a.** a large wild tract of land covered with dense vegetation or forests. **b.** an extensive area, as a desert or ocean, that is barren or empty: WASTE. **c.** a piece of land that is set aside to grow wild. (Webster, 1984)

designated Wilderness -2. in contrast with those areas where man and his work dominate the landscape, is hereby recognized as an area where the earth and community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions...(Wilderness Act of 1964).

Leave No Trace Equipment List:

Ten Essentials

Extra Clothes
Extra food
Shelter - (Rain Gear)
Pocket knife
Waterproof matches/lighter
Water bottles - Water
Topographic maps/Compass
First Aid Kit
Flashlight with extra batteries and bulb
Signaling Device (mirror)
Sunscreen/Sunglasses

Other Equipment

Water-resistant boots
Ankle gaiters
Lightweight cookstove with windscreen and ample fuel
Waterproof tent (earth tone color if possible)
Carefully sized ground sheet for tent
Trowel (for digging catholes and cleaning fire rings)
Large water containers (water bag or collapsible bucket)
Extra garbage bags
Rope (for hanging food)
Candle
Plastic bags (for keeping clothes and equipment dry)
Extra socks
Sleeping pad
Light camp shoes
Water Filter
Synthetic fill sleeping bag
Extra clothes (wool and polypropylene)

What is Wilderness?

What do you think of when someone says the word “Wilderness”? Chances are, you think about a rugged, desolate, perhaps even scary place that does not offer you all of the “creature comforts” you’re accustomed to. Some of you may have focused on the word “wild” in the word wilderness and come up with a picture of an untamed, wild area. Perhaps wilderness seems like a place where you can feel alone with nature, away from the noise and business of cities and towns. Some people find that same sense of solitude in their backyard, or in a city park. It is often said that wilderness is a state of mind...it is a place where you can be alone and enjoy the beauty of the outdoors away from the hustle and bustle, sights and sounds of the city.

Each of us may have our own individual and personal idea about the meaning of wilderness. At different times throughout history there have been various social perceptions of wilderness too, depending on the religious and cultural values that existed at the time. To Native Americans, what we now call wilderness was not “wild” but rather, their natural home which provided the physical and spiritual foundations of their lives and culture. Early Anglo-European explorers saw America as a vast and bountiful land, rich in resources. More and more non-native settlers arrived with the belief that wilderness was a useless wasteland that needed to be conquered, tamed and civilized. To them, the wilderness was valuable only if the resources there could be used for human purposes. In the 19th century, some people began to see the beautiful ruggedness of untamed lands as something inspirational and valuable in their own right. As environmental awareness grew, more and more citizens recognized the need to conserve the natural resources and protect the landscapes that wilderness offered from development and exploitation. Finally in 1964, Congress passed the Wilderness Act setting up a system for preserving some public lands as official and legally protected Wilderness areas. These Wilderness areas are part of the National Wilderness Preservation System and are to be managed in ways that preserve their “untrammelled” and natural state to benefit all generations of Americans, present and future.

Our American wilderness is an important asset. It is, in many instances, the only unspoiled nature left to us. It is a place for camping, hiking, canoeing, horseback riding, fishing, hunting, wildlife observation, plant study, geological exploration, mountain climbing, artistic expression, scientific investigation, spiritual renewal, personal challenge, and inspiration. It is a place where natural systems of life exist without significant human interference or control. Wilderness areas are protected for their many resources and benefits to humans and to preserve all aspects of nature—animals, plants, earth, air, water—and ongoing natural processes for their own sake.

The Wilderness Act

(In Part)

Public Law 88-577 (16 U.S.C. 1131-1136)

88th Congress

Second Session September 3, 1964

In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be the policy of the Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. For this purpose there is hereby established a National Wilderness Preservation System to be composed of federally owned areas designed by Congress as “wilderness areas,” and these shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness.

A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which:

- (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable;
- (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation;

- (3) has at least five thousand acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition; and
- (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

This is only a portion of the Wilderness Act. For the complete Act consult your local library or public land management agency.

The Wilderness Act, A Translation

AN ENDURING RESOURCE

The Wilderness Act gives the American people the world's only National Wilderness Preservation System, a gift to unborn Americans as well as to us. On the first page, the Act states that the benefits of an enduring resource of wilderness are for the American people of present and future generations. Designated to remain forever wild are some lands inside National Forests, National Parks, National Monuments, and National Wildlife Refuges. Today, because of further legislation, Bureau of Land Management lands, National Grasslands, and eastern roadless areas are eligible for wilderness designation as well. Only Congress can designate a wilderness.

Section 2 of the Act gives the U.S. Forest Service a mandate. We must manage these areas so they actually are an “enduring resource, one that remains unimpaired for future use and enjoyment as wilderness.” This entails much more than just picking up garbage.

UNTRAMMELED BY MAN

A puzzling word stands out near the beginning of the Act's definition of wilderness, forcing readers to dust off their dictionaries. Howard Zahniser of the Wilderness Society carefully selected “untrammelled” to be a key word in this definition. When the Act defines wilderness as “an area where the earth and its community of life are untrammelled by man,” many readers confuse trammeling with trampling and think that Congress simply asked us not to beat down the vegetation. The actual meaning is more profound. Defined as “uncontrolled or unrestricted,” “untrammelled” as used in the Act creates a concept that makes a designated wilderness unlike any other land in the Nation. Here, humanity and its technology cannot attempt to control or restrict the plants, animals and natural forces. By Congressional decree, nature dominates and man cannot interfere with natural processes. The land must be managed “to preserve its natural conditions.”

THE WILDERNESS EXPERIENCE

Before you enter any wilderness, ask yourself if you actually want a wilderness experience. The Act states that you can “use and enjoy” these lands “as wilderness.” Few people can agree on just what a wilderness experience is. Congress defined it as “outstanding opportunities for solitude or a primitive and

unconfined type of recreation.” Furthermore, “the imprint of man’s work” must remain “substantially unnoticeable.” Certain activities do not meet this criteria and a special paragraph prohibits them.

They are...

- Commercial enterprises
- Roads and structures
- The landing of aircraft
- Motorized equipment
- Motor or mechanical transport

The remaining pages of the Act include exceptions to each of these prohibitions. Called special provisions, they are compromises, the result of eight years of debate between pro- and anti- wilderness forces. If Congress had not compromised, the Act never would have passed. The rewrite that finally triumphed on Capitol Hill allows bits of civilization inside wildernesses:

- Aircraft and motorboats may operate if their use was established before the Act was passed.
- Prospecting and mining are permitted, but the Secretary of Agriculture may issue “reasonable stipulations...for the protection of the wilderness character of the land.”
- The Act allows hunting and fishing, but sportsmen must follow State fish and game regulations.
- Outfitters can operate commercial businesses so long as they provide services that “are proper for realizing the recreational or other wilderness purposes of the areas.”
- Livestock can graze if this use was established before the Act was passed.

- The President can authorize water developments and power projects. These could include reservoirs, transmission lines, and roads.
- Owners of private property surrounded by wilderness are allowed “adequate access” to their land and wilderness regulations do not apply to their property.
- The Act allows for the minimum means necessary to administer wildernesses. This permits limited use of motorized equipment and a few facilities, such as fire lookouts, trails, bridges, and cabins. We also can do whatever is necessary to suppress forest fires or to rescue lost or injured visitors.

Historic Timeline of Wilderness Preservation

- 1864** Congress created Yellowstone National Park.
- 1872** Congress created Yosemite National Park.
- 1891** US Forest Service created.
- 1899** Congress created Mt. Rainier National Park.
- 1916** National Park Service created.
- 1917** Landscape architect Frank Waugh's survey of potential national forest concludes that the "enticing wildness" of the forest has "direct human value" and should be given parity with economic consideration when determining the forests' future.
- 1919** Forest planner Arthur Carhart recommends that the Trappers Lake area in Colorado's White River National Forest not be developed for summer homes but be allowed to remain wild. Carhart's plan is approved.
- 1924** Forester and ecologist Aldo Leopold urges the Forest Service to protect the Gila National Forest in New Mexico. Some 574,000 acres are set aside as a preserve for wilderness recreation.
- 1926** Chief Forester W. B. Greeley issues first national policy statement on wilderness and directs preparation of an inventory of all *de facto* wilderness on the national forests, the first such survey in American history.
- 1929** Forest Service issues the L-20 Regulations, to establish "primitive" areas within the national forest.
- 1930** Bob Marshall publishes the "The Problem of Wilderness" in *Scientific American*. Marshall writes, "The preservation of a few samples of undeveloped territory is one of the clamant issues before us today. Just a few more years of hesitation and the only trace of the wilderness which has exerted such a fundamental influence in molding American character will lie in the musty pages of pioneer books."

Congress enacts the Shipstead-Newton-Nolan Act to protect the more than one million acres of interconnected waterways that comprise the

Superior Primitive Area in Minnesota -- the first federal law in American history to protect a wilderness area.

- 1935** The Wilderness Society is launched by Bob Marshall, Aldo Leopold and others.
- 1938** Olympic National Park created.
- 1939** The Forest Service issues the U Regulations, which supplant and strengthen the L-20 Regulations and direct the “primitive” areas be reviewed and reclassified as “wilderness,” “wild,” or “roadless,” depending on size.
- 1945-55** Forest Service reclassifies some lands from wild status.
- 1950-56** Dam at Echo Park in Dinosaur National Monument is proposed. Conservationists work to prevent the Monument's destruction.
- 1953** Coastal Strip is added to Olympic National Park.
- 1955** Howard Zahniser, executive director of The Wilderness Society, writes first draft of a wilderness bill.
- 1956** Senator Hubert Humphrey introduces the first wilderness bill in the U.S. Senate. Congressman John Saylor introduces a companion bill in the House of Representatives a few days later.
- 1963** U.S. Senate passes the wilderness bill.
- 1964** House of Representatives passes the Wilderness Bill. President Johnson signs the Wilderness Act at a White House garden ceremony on September 3. Glacier Peak, Goat Rocks, and Mount Adams are first Wilderness Areas designated in Washington State.
- 1968** Congress created North Cascades National Park, withdrawing portions of land from the Mt. Baker and Wenatchee National Forest. Pasayten Wilderness established. Congress also establishes Ross Lake and Lake Chelan National Recreation Areas and adds acreage to Glacier Peak Wilderness.
- 1976** Alpine Lakes Wilderness established.
- 1984** On July 3rd, the Washington Wilderness Act is signed into law, adding land to the National Wilderness Preservation System in the following Wilderness Areas: Boulder River, Buckhorn, Clearwater, Colonel Bob, Goat Rocks, Glacier Peak, Glacier View, Henry M.

Jackson, Indian Heaven, Juniper Dunes, Lake Chelan-Sawtooth, Mt. Adams, Mt. Baker, Mt. Skokomish, Noisy-Diobsud, Norse Peak, Pasayten, Salmon-Priest, The Brothers, William O. Douglas, and Wonder Mountain. 800 acres were removed from designation as Wilderness in the Goat Rocks area to allow for possible future expansion of White Pass Ski Area. Overall the Goat Rocks Wilderness was expanded by about 20,000 acres.

- 1986** Acreage added to Buckhorn and The Brothers Wilderness Areas in the Olympic National Forest.
- 1988** Washington Park Wilderness Act passed by Congress, designating Wilderness areas in North Cascades (Stephen Mather), Olympic, and Mt. Rainier National Parks.
- 1990** Congress added 4.6 million acres in four states to the National Wilderness Preservation System, for a total of 94 million acres in 561 individual areas.

Girl Scout Program Links

Girl Scout programming has many links with minimum impact philosophy. Although all age levels can select activities from *Earth Matters, A Challenge for Environmental Action*, Brownies, Juniors, Cadets, and Seniors have specific parts of Try Its, badges, and interest patches that have requirements directly linked to minimum impact education.

BROWNIE GIRL SCOUT TRY-ITS

Animals	Meeting an Animal; How they look
Earth and Sky	The Soil; Going, Going, Gone: The Sky's My Home.
Earth is our Home	How Long Does It Take; Recycling; Trash Busters
Outdoor Adventure.....	Entire Try It
Outdoor Fun.....	Trail Signs; Ecology Hunt; Touch, Smell, Listen; Rubbings
Outdoor Happenings	Watching Rain and What It Does
Plants	Adopt a Tree; Leaf Hunt; Food Chain
Water Everywhere	Clear, Clear Water; Water Snooper; Water Explorer

JUNIOR GIRL SCOUT BADGES

Doing Hobbies	
Exploring Healthy Eating	#2, #3, #4
First Aid.....	#2, #4, #7
Plants and Animals	#2, #4 (nettles, mosquitoes)
Ready for Tomorrow.....	#3 (seal of approval for backpacking items)
Science in the Worlds.....	#E1 and #E2
Water Wonders	#2, #4, #6, #14
Weather Watch.....	#8
Video Production	#10 (with a minimum impact theme)
World of the Out-of-Doors Dabbler	#C1, #C2, #E2, #F1, #G2
Eco-Action	#1, #6, #7, #8
Ecology.....	entire badge
Finding Your Way.....	#4 (draw a campsite map), #6
Frosty Fun.....	#1, #2, #4
Hiker.....	entire badge
Outdoor Cook.....	#1, #5, #6, #9, #10, #12, #13
Outdoor Creativity	#6 (nature journal), #9 (minimum impact theme)
Outdoor Fun	#3, #6
Troop Camper	#2, #3, #11
Walking for Fitness	#3 (compare hiking shoes), #7, #10

Wildlife..... #4

CADET AND SENIOR GIRL SCOUT INTEREST PROJECTS

Audiovisual Production-Advanced. (with a minimum impact theme)

Geology..... #11

Creative Writing #8

Animal Observation..... #8, #12

Backpacking..... Entire Interest Patch

Camping..... #4, #5, #6, #7, #12, #13

Eco-Action #9, #11

Outdoor Survival..... #1, #3, #4, #5, #10

Skiing and Snowshoeing #1

Wildlife..... #10

Sample Itinerary Form

- 1) Name and number of chosen trail: _____
County: _____
Accessed from highway: _____
- 2) Trailhead name and number: _____
Access from road number: _____
- 3) Returning to trailhead (name and number): _____
- 4) Vehicle make, color, and license plate number(s): _____
- 5) Total number of people in party: _____
- 6) Name of all participants and any medical problems:

	NAME	HOME PHONE	MEDICAL AND/OR PHYSICAL PROBLEMS	MEDICATION
1)	_____	_____	_____	_____
2)	_____	_____	_____	_____
3)	_____	_____	_____	_____
4)	_____	_____	_____	_____
5)	_____	_____	_____	_____
6)	_____	_____	_____	_____
7)	_____	_____	_____	_____
8)	_____	_____	_____	_____
9)	_____	_____	_____	_____
10)	_____	_____	_____	_____
11)	_____	_____	_____	_____
12)	_____	_____	_____	_____

INFORMATION SOURCES

The following aids are excellent materials for a Leave No Trace library.

REFERENCE BOOKS

Soft Paths - How to enjoy the wilderness without harming it, Bruce Hampton and David Cole. The National Outdoor Leadership School. 1995.

An Introduction to Wild land Ethics & Management, Susan Brame & Chad Henderson. The National Outdoor Leadership School. 1992.

Backwoods Ethics - Environmental Concerns for Hikers and Campers, Laura and Guy Waterman, The Countryman Press. Second Edition. 1993.

Freedom of the Hills, Seattle Mountaineers, Fifth edition.

How to Shit in the Woods, Kathleen Meyer, Ten Speed Press. 1994.

The T.R.A.I.L. Boss Manual—Teaching Resources and Individual Leadership, Robert C. Birkby, Boy Scouts of America. Irving, Texas. 1992

A Wilderness Bill of Rights, William O. Douglas, Little, Brown and Company, Boston, Massachusetts, 1965.

Earth Prayers from Around the World, edited by Elizabeth Roberts and Elias Amidon, Harper, San Francisco, 1991.

Listening to Nature, Joseph Cornell, Dawn Publications, Nevada City, CA, 1987.

Careful Campers Coloring Book, available through the Northwest Interpretive Association, 83 So. King St., Suite 212, Seattle, 98104, Ph. 206-442-7958.

PAMPHLETS

(available from the USDA Forest Service)

Leave No Trace Skills and Ethics series, 10 volumes available.
National Outdoor Leadership School, 1991-95.

Backpacking, USDA Forest Service, Program Aid 1239, 1981.

Leave No Trace! - A Program to Teach Skills for Protecting the Wilderness Environment, USDA, Forest Service, FS-S21, 1992.

A Wilderness Original: The Life of Bob Marshall, James Glover.
The Mountaineers, 1986. (Available through The Mountaineers)

ACTIVITY SETS

The Wilderness & Land Ethic Box and associated Wilderness Curriculum, Wilderness Education Association, Ft. Collins, Colorado, 1994. K-8th Grade visual aids, activities and lesson plans that enhance knowledge and skills of land ethics. Available through local or regional Forest Service offices, the Wilderness Education Association, or the Arthur Carhart Wilderness Training Center in Huson, Montana.

Teaching Leave No Trace, Utah Bureau of Land Management, Salt Lake City, 1995. Frontcountry and in-town Leave No Trace Activities for youth aged 6-18.

VIDEOS

(available on loan from the USDA Forest Service)

Soft Paths - How to Enjoy the Wilderness Without Harming It, The National Outdoor Leadership School, 1990.

Wild By Law, Direct Cinema, Ltd., Los Angeles, CA.

The Last Solitude, USDA Forest Service, Gila National Forest.

The National Outdoor Leadership School, a wilderness skills school, and Leave No Trace, Inc., a non-profit organization which unites private

organizations, manufacturers, and federal land management agencies in the national Leave No Trace education program, operate a toll free **Leave No Trace Hotline**.

Call **1-800-332-4100** to receive pamphlets, brochures and posters to use in troop training.

GIRL SCOUT PUBLICATIONS

all published by Girl Scouts of the USA, New York, New York

Brownie Girl Scout Handbook	1993
Junior Girl Scout Handbook	1994
Cadet and Senior Girl Scout Handbook.....	1987
Cadet and Senior Girl Scout Interest Projects.....	1987
Girl Scout Badges and Signs	1990
Outdoor Education in Girl Scouting.....	1984
Earth Matters, A Challenge for Environmental Action.....	1992
Safety Wise	1993
Safety and Risk Management in Girl Scouting.....	1993
From Backyard to Backcountry: Camping Lightly on the Land: a 14-minute slide presentation.....	1991

BOY SCOUT PUBLICATIONS

available from the local BSA office or from:

The Boy Scouts of America
PO Box 909
Pineville, NC 28134-0909
or call toll-free 1-800-323-0732

Boy Scout Merit Badge Pamphlets:

Camping
Wilderness Survival
Soil and Water Conservation
Backpacking
Hiking

Venture Pamphlets:

Snow Camping
Survival
Caving
Rock Climbing and Rappelling
Backpacking
Discover Adventure
Canoe Camping

Boy Scout Handbook

Boy Scout Field Book

General Literature:

Family Camping
Conservation Pocket Guide
Conservation Handbook

World Scout Bureau and WWF: International
the World

Help to SAVE

Literature Cited

Cole, David N. and Jim Benedict. 1983.

Seven principles of low-impact wilderness recreation. Western Wildlands Spring: 39-43.

National Outdoor Leadership School. 1994.

Leave No Trace Outdoor Skills and Ethics series: vol. 7, Pacific Northwest. Lander, Wyoming. 24p.

Scherrer, Wendy. 1991.

Teaching For Wilderness. North Cascades Institute. 108 p.

Soukhanov, Anne H., and Kathe Ellis. 1984

Webster's II—New Riverside University Dictionary. Riverside Publishing Company.

USDA Forest Service, 1991.

Leave No Trace! An outdoor ethic. Ogden, Utah. 14 p.

Wilderness Institute. 1985.

Wilderness Management Exercises and Activities for Fifth Grade Students. University of Montana. 28p.

Teaching Tips

“Don’t step lightly in the wildwood because a government agency or a book tells you to do so. Tread lightly out of affection, out of respect, out of a generosity of spirit toward the land and its wild inhabitants.”

-David Foreman

The Task

We face a challenge. Much of our precious wilderness is being loved to death. The impacts occurring in these areas is rarely intentional. There are so many of us living in this fast growing part of the country, that these areas are receiving large amounts of use. Sometimes we take wilderness for granted. It seems as though it's part of our backyard.

You can help! One of the very best ways that young Scouts can learn about our wild lands and how to care for them is from a troop leader or senior Scout like yourself who has gone through the ranks, and who knows and understands the fragile and limited nature of our woodland playgrounds. Other Scouts look up to you, believing all you have to say.

Just a few hours of your time can make a big difference. Send your troop on its way with a new awareness of Leave No Trace Skills. This section provides suggestions to smooth your way into a teaching role, making it easier for both you and your new "students" to appreciate and put in place the ethics and techniques outlined in this manual.

Use the skills you know best. Teach by example, by sharing your enthusiasm with your Scouts, and by working to expand outdoor Leave No Trace education to all levels of the Scouting Program.

Decide On Your Approach

You may select some aspect of the curriculum. An alternative approach is to relate this subject to an event in your own life.

Prepare Your Activity Based On Students' Needs And Abilities

What do your students already know? Know the ages and learning ability of the young people you are teaching. See the page titled "Thinking and Learning Characteristics".

Be Prepared For Participant Reactions And Behavior

Keep in mind that parents or group leaders may have their own ideas about some issues, such as campfires, sanitation, or walking through the mud on the trail. If you have questions about appropriate ways to present your subject, discuss your plans with other Leave No Trace trainers or call the LNT Information line at 1-800-332-4100.

Know Your Stuff!

Study the material in this manual and contact any of the persons named herein if you have questions.

Assemble Your Notes And Materials In Advance

If each Student is to have a handout or materials. Make sure you have enough of each. See that materials are organized. Do a test run on any activities that you plan to do.

Use Terminology That Is Appropriate For The Students

If there are a number of words or concepts your participants would benefit by knowing in advance, give them out beforehand, so your students can learn them.

Be On Time!

In fact, be early, so you can set up and be relaxed when it's time to do your thing.

Share Yourself

Let your students know about how you got into outdoor recreation. Was there a special event or person in your life—a teacher, a learning experience, a book, a visit to a National Park or National Forest—that aroused your interest?

Have Fun

If you are really enjoying this session, so will your charges.

Involve The Students In Doing

Bring an attention grabber if you can. Keep in mind that your goal is to arouse curiosity, excitement, eagerness to know more. The contents of your backpack may be commonplace to you, but they are mysterious, unknown, even fascinating to others. When possible, let students handle equipment or samples.

Involve The Students In The Process

Do a simple activity in which the students participate. The process skills of learning—observing, identifying, classifying, measuring—are the skills that enable them to apply what you teach to everyday situations.

Stimulate Thinking By Asking Questions

Questions that ask participants to make a prediction, to give an explanation, to state an opinion or to draw a conclusion are especially valuable. Be sure to allow time for each person to THINK before anyone gives answers.

Use Language The Students Will Understand

Be conscious of vocabulary. Try not to use a difficult word when a simple one will do. Define words students may not know.

Make What You Are Talking About Real

Show participants that the out-of-doors or backcountry is (or will be) part of their life. How has what you have learned up to this time changed the ways in which you think or behave? How will what you and these students do make all your outings better or different in the future?

Leave More Than A Memory Behind You

Help set up activities that the group will continue after you leave. Hand out assignments for your students to complete on their own or with their families. Invite them to contact you with questions, and plan on answering those questions quickly!

Ask For An Evaluation Of Your Efforts

Ask the students what they liked (and didn't like) about your presentation. Ask your group leader to critique your presentation and help you improve your teaching skills.

Schedule Your Next Training Session!

Thinking and Learning Characteristics of Young People

Early Elementary (K-2)

As a thinker...

- Learns through manipulating objects.
- Believes what he or she sees.
- Can't trace steps back from a conclusion.
- Sees parts, not the whole.
- Does not understand that making physical changes in an object does not change its amount.

As a learner...

- Is expansive, adventurous, curious, eager to learn, energetic, always in motion, loud, and emotional -- has mood swings.
- Wants to please adults.
- Has difficulty controlling impulses and regulating behavior.
- Is very "me" centered. Seeks attention. Loves praise.
- Like to work in groups, but will need assistance.
- Can sit still and listen 10-15 minutes.; needs frequent change of pace.

Late Elementary (3-5)

As a thinker...

- Although still somewhat tied to seeing in order to believe, begins to understand concepts as well as objects.
- Understands hierarchical classification systems.
- Can combine, sort, multiply, substitute, divide.
- Begins to generalize, formulate hypotheses, use systematic problem-solving strategies.
- Likes to memorize, to learn facts.

As a learner...

- Understands rules and can follow them.
- Likes group activities and excursions. Is a great socializer and eager to fit in.
- Considers fairness to be important.
- Takes initiative and is self motivated.
- Is becoming an independent learner.
- Is a perfectionist who will practice the same thing over and over again.

- Avoids opposite sex.
- Can sit still and listen 20-30 minutes (variety increases attention span).

Middle Grades (6-8)

As a thinker...

- Can hypothesize, create propositions, and evaluate.
- Can conceptualize in the abstract and understand probability.
- Begins to understand multiple causation.
- Developing understanding of ethical principles.

As a learner...

- Is emotional, restive, and eager to get moving.
- Is easily bored.
- Challenges rules, routines, and authority.
- Is beginning to have an interest in the opposite sex.
- Is typically more oriented to small-group activity.
- Has a vulnerable ego; is very self-conscious and concerned about how he/she is perceived by others.
- Can handle 30-40 minute sessions.

Reproduced from the North Carolina Museum of Life and Science, *Sharing Science with Children: A Survival Guide for Scientists and Engineers.*

Sample Syllabi

This section contains two teaching syllabi to aid troop leaders and senior Scouts in incorporating Leave No Trace into their troop activities. The first syllabus was written by a BSA Scoutmaster and is designed to fit into the existing training structure used by the Boy Scouts. The second syllabus was written by a wilderness ranger and will be useful in designing your Leave No Trace training. Elsewhere on this site are teaching tips, thinking and learning characteristics of young people, and some ideas to remember. Use your creativity and that of your troop to fit Leave No Trace awareness into all your troop's activities.

Syllabus I

Project Leave No Trace A Leave No Trace Syllabus

written by Kent Brooten, BSA Scoutmaster

This syllabus is intended to guide you, the Leave No Trace training leader, in creating a program that will result in behavior which makes your scouts excellent citizens of the backcountry.

Before you can effectively lead a group in LNT principles, you must fully embrace these principles yourself. Leave No Trace must be a part of your every fiber. Failing to “own” this program before you begin will send a very confused message to your scouts.

If you are not convinced of the necessity of this message, take the extra time now, before you begin training, to adopt the Leave No Trace principles. The next two pages will help you understand where you stand in regards to LNT information.

Step 1

VISION STATEMENT

The Boy Scouts of America have utilized the out of doors to accomplish the Aims of Scouting: to Build Character, to Promote Fitness, and to Establish Citizenship.

Citizenship means more than understanding the Pledge of Allegiance or working well together in a Patrol. In the context of Leave No Trace, it means becoming a responsible citizen of the wilderness—of all open lands and the natural world found there.

The vision of this training program is to educate the Scout with Leave No Trace principles and to instill in the Scout the desire to behave as a highly responsible citizen while in the out-of-doors.

As the Scouts we influence as youth grow up, they sow seeds of what they learn from their experiences in the Scouting program. As a High School student they may take their friends camping. Those friends naturally look to the “Boy Scouts” for the right way to do things. In college, more friends will be influenced by our Scouts. Throughout their lives, each of our Scouts will influence tens, hundreds or thousands of others in their method of camping. Jim and Lou Whittaker (famous mountain climbers) started as Boy Scouts.

Our vision as trainers should be to see our Scouts as ambassadors of the wilderness, from backyard to backcountry. We can make an incredible difference in the preservation of the wilderness for generations to come by how we lead our Scouts today. This program is a cornerstone in that preservation.

Step 2

WHERE TO START

This manual contains a great deal of information. Familiarize yourself with its contents. In addition to outlining the Project Leave No Trace Principles of Low Impact Recreation and the key Leave No Trace skills for frontcountry and backcountry camping, it contains excellent activity suggestions and appendices.

Each group will be starting at a different spot. Some units with extensive backpacking experience may already have the Leave No Trace principles as a part of their culture. Some units may only do frontcountry camping. Some may do a lot of backpacking but have no knowledge of Leave No Trace and consequently may have to overcome some bad habits. And to further complicate the task, even experienced units will probably have some new Scouts with no idea of Leave No Trace. The first step in putting a training plan together for *your* unit is to honestly understand where you are. Start by asking yourself the following questions:

- Does my troop often have to build a fire to get dried out after a sustained rain?
- Do we routinely build campfires to cook over?
- Do we often build new fire rings?
- Do we always leave the campsite spotless when we depart?
- Do we wash our dishes in nearby streams or lakes?

- Do we bathe in nearby streams or lakes?
- Do we have local critters getting into our food or garbage?
- Do we have Scouts cutting switchbacks?
- Do we enter protected areas with a group size larger than the established limit?

Honest answers to these questions will help determine where your group is in the process of learning LNT principles. Having established where you are will help you to outline a training program tailored to the knowledge of your troop.

The basic elements that should be included in all training curriculum are:

A) The Project Leave No Trace Principles of Low Impact Recreation and the skills outlined under the frontcountry and backcountry sections in this manual

1. Plan ahead and prepare.
2. Camp and travel on durable surfaces.
3. pack it in, Pack it out.
4. Properly dispose of what you can't pack out.
5. Leave what you find.
6. Minimize use and impact of fires.
7. Minimize noise and visual intrusion.

B) Hands-on experience with monitored active feedback on progress.

C) Periodic reviews and refreshers on key concepts and skills.

Step 3

THE TRAINING PROGRAM

When you climb a mountain, you have a definite destination in mind—the summit of the peak.

Our destination with this Leave No Trace program is: A greater awareness of how personal actions impact wilderness: from backyard to backcountry. Scouts will learn to differentiate between high and low-use areas, and will learn to apply appropriate camping skills to each area.

It will take several sessions to accomplish this task. Sessions should take place both inside and outside, in the frontcountry and backcountry. Remember it is difficult to keep Scouts sitting still for longer than 45 minutes. Keep the activities varied. Make them fun.

What follows is a suggested outline. It is adaptable to meet your needs.

SESSION 1

“Today, we’re going to plan our next camping trip/day hike. We’ll go through the whole process of planning the trip together. Planning is the key to a successful outing. A well planned outing with prepared Scouts will go a long way to leaving no trace.”

- Plan the outing.
- What is the destination?
- What is the purpose of the outing (5 or 10 mile hike, working on the camping merit badge, taking photos, etc.) Each outing should have a purpose. That purpose should focus on one or more of the Aims of Scouting (Fitness, Character, Citizenship).
- Who will go? How will you be organized? Will you conform to the “rule of four”? Will your group size comply with the administering agency’s requirements? If your group size exceeds the limit, will you split into two groups with separate, distinct routes and destinations?
- What equipment will you take? Does that equipment promote LNT?
- How will you cook? Are fires allowed in the area? Are they discouraged? Where will the fuel come from? Is there a possibility of the area suddenly closing to fires due to fire danger?

Have the group plan the outing as a troop or patrol exercise. After they have completed the planning and are certain they have thought about all aspects of the plan, have them get back together. Lead a discussion based on the following questions. Stress they should have these bases covered with written answers. “Winging it” with off the cuff answers is *not* having it well planned.

Trip Planning Questions

Now that your trip is planned, answer these questions:

1. How long will it take to get from your meeting spot to the trail head?
_____ hours

2. Who will pay for gas? _____
How much will it cost? _____

3. How much will each patrol member pay for food ? \$ _____
How heavy will your food be? _____ lbs/each

4. Did you plan the menu or did the adults? How much will the adults' food cost?
\$ _____ how heavy will their food be? _____ lbs/each

5. If the drivers are dropping you off, how long will they drive? _____
hours

6. Will you provide maps for the drivers to and from the trailhead? yes no

7. Who will you give a list of participants to (outside the hiking group)?

8. Who will be the single contact outside the hiking group?

Will he or she have an itinerary? yes no

9. Will each member of the group have an itinerary?

10. Will the leader have permission slips in his pack? yes no

11. Will you file a tour permit? yes no

12. What other permits will you need?

13. How much emergency money will the leader have in his/her pack? \$ _____

14. If you will be swimming, will your group have a certified BSA/GSUSA Lifeguard
or Red Cross Lifeguard? yes no
Will an adult have his "safety afoot/afloat certification"? yes no

15. Will anyone have Advanced First Aid training? yes no

yes no

Session 2

Trails and Travel

Assign a patrol to do a demonstration on footwear.

Ask them to discuss:

- 1) hiking boots and selection
- 2) gaiters
- 3) waterproofing boots (demonstrate)
- 4) footwear around camp

As trainer, you may have to lead them to insure they present accurate data. Information may be acquired through sporting goods shops and outing clubs.

After the demonstration/presentation, ask the remaining troop members where they can secure this equipment. Stress the importance of adequate footwear and why it is part of Leave No Trace equipment (i.e. if boots are waterproofed, you don't need a fire to dry them out, you won't need to walk off-trail to skirt muddy spots, etc.)

Get the group to close their eyes and visualize walking on a trail (or show some slides of Scouts hiking on a trail). Ask them to describe some ways they can impact the trail. Have another patrol list these areas of impact on a flip chart. Post each page in the meeting room when complete. Follow along the "Trails and Travel" section in the book and insure they cover all areas.

Complete the exercise for Trailless Areas and discuss Trail Etiquette. Personalize it to your group. Relate how it might have affected your group at their last outing.

Alternatively, plan a day activity in a "natural" park near your meeting place. You might have your troop meeting there instead of your regular meeting place, or your day activity might be a troop picnic, etc. Select an area with designated trails and "social" trails. Take the group for a short hike. Cover the various points in the Trails and Travel Section as you hike the trail.

Session 3

People, Plants, and Wildlife

If you have the opportunity during the hike in Session 2, try either the “Silent Hike,” “Solitude Sit,” or one of the other activities described in the Activities section of this manual.

Ask a Scout working on the Communications or Public Speaking Merit Badges to prepare a talk for the troop on the impact of food and garbage in a campsite. Provide the appropriate section of the manual for him to review. Have him rehearse his talk for you prior to the troop meeting. An additional talk might be on the Plants section. Have no more than two talks, not to exceed five to seven minutes each. After the talk(s), pick a few Scouts to tell what they heard. Discuss as a group.

Session 4

Health and Sanitation

Select a patrol to instruct the troop on how to properly do their dishes (as outlined in the Activities section of this manual). Have them demonstrate proper dishwashing during a troop meeting. This might accompany a cooking demonstration.

A slide show titled “Health and Sanitation” is available from Kent Brooten (206- 631-5431). You may wish to show this narrated slide show at your troop meeting. It covers: washing dishes, washing self, human waste disposal, water purification and litter.

You may also want to select several of these topics to demonstrate at troop or patrol meetings. For washing dishes, washing self, and human waste disposal it is important to have the scout see these demonstrated step by step (for human waste disposal it isn’t necessary they actually SEE a live demonstration—going through the actions without removing clothing parts or doing the dirty deed will suffice).

While on the day hike in Session 2 (or during another day hike) make a game of litter collection. Give a prize to the patrol that collects the most. Afterwards, discuss litter and why it’s there. What effect does it have on their sense of wilderness. Have them address why THEY should clean it up. Lead them to realize it’s part of our nature to be “...helpful to other people at all times... .” If we won’t clean it up, why should we expect someone else to?

One activity that might be helpful to encourage boys to be tidy while camping is called “Gimme Gimme.” If a Scout inadvertently drops litter and another Scout has to pick it up, the second Scout is entitled to some of the first Scout’s “goodies” (“Gimme! Gimme!”)

Session 5

Campsites, Campfires, and Stoves

Go on the outing planned in Session 1.

During the troop meeting before the outing, take the True/False test on “Fires and Stoves” in the Activities section of this manual.

Discuss the answers.

For a Patrol activity during a meeting, have each patrol answer the “Wilderness Campsite” questions in the Activities section of this book. Have one member of the patrol present his patrol's answers to the troop. Judge the “best” patrol and have a prize for that group.

Before camp is setup, ask the Scouts to select various “Good” and “Bad” campsites. Discuss each selection. Your discussion should center around the “Type” of area you are in. Concentrate impact in highly used areas, disperse impact in pristine areas. Never camp or walk in moderately used areas.

Have them consider how possible “social” trails will influence their selection. Also consider the anticipated cooking area(s), trails to and from the water supply, distance from streams and lakes, proximity to other campers and other local factors.

During the outing demonstrate the use of a stove for cooking. Ask Scouts to tell when stoves are most appropriate. Ask them to discuss the advantages and disadvantages of fires. Lead them to discover when fires are inappropriate and not allowed.

At the end of your trip, evaluate all aspects of the outing. Ask Scouts to tell what they did well. Ask them to tell what they need to improve on. How will they accomplish it? Did they forget something that caused them to make a bigger impact? What will they do next time?

Session 6

Certification and Evaluation

Have patrols plan for the Project Leave No Trace Certification Event outing, or your troop's own backcountry certification outing pre-arranged with the appropriate land management agency.

Syllabus II

Campsite Crusades

A three and a half hour workshop
designed to teach the fundamental of Leave No Trace

*Adapted from a version created by
Andrea Nightingale, Wilderness Ranger
Skykomish Ranger District*

The following syllabus is just one way to teach Leave No Trace skills. Feel free to adapt it to fit your troop, District, or Council needs.

WORKSHOP SYNOPSIS

Scouts participate in hands-on activities beginning with a large group trip planning session. Then, breaking into smaller groups, they rotate through three outdoor stations:

- 1) In Camp
- 2) Stoves and Fires
- 3) Walking Wilderness

The session is concluded with a look at the Leader's camp.

LEARNING OBJECTIVES

Scouts learn how preplanning plays a vital role in the safety of the troop. A greater awareness of how personal actions impact Wilderness is fostered. Scouts learn to differentiate between high and low-use areas, and apply appropriate camping skills to each area. Scouts learn how to use stoves and how to build minimum impact fires and know when and where they are appropriate.

CONCEPTS

- 1) Good preplanning makes a trip easier, more comfortable, and can allow you to more easily Leave No Trace.
- 2) Many safety precautions also make your trip lower impact.

- 3) Concentrate use and impact in popular places; disperse use and impact in pristine places; stay off places that are lightly impacted or just beginning to show effects.

Indoor Activities

Total suggested time: **30 minutes**

INTRODUCTION

Suggested Time: **5 Minutes**

This is a sample of how to begin. Be sure to introduce all three concepts early on and keep coming back to them at every opportunity.

“Today we’re going on a camping trip. We’ll go through the whole process of planning for our trip together, then go outside and learn how to set up a no trace camp, when and how to use a stove and a campfire, and how to leave no trace while you are hiking.

We’ll be focusing on three different ideas that are important for you to remember.

First, we’ll be inside for about forty-five minutes planning the trip, because planning is the most important part of any wilderness experience. The trip is more comfortable and it’s easier for your group to Leave No Trace at all if you have the proper equipment and knowledge.

The second idea I want you to remember is that you can make your experience safer and lower impact at the same time. One of the most common ways people impact the Wilderness is by not being prepared. For example, if you do not have adequate footgear you may end up going around muddy spots on the trail, making the trail even wider. Or if your rain gear isn’t adequate, you may get wet and cold; a dangerous situation which may require you to build a fire in an inappropriate area. Also, knowing important information about your route and what to do if you do run into trouble will make it easier for you to handle emergency situations.

Finally we will talk about essentially two different set of wilderness skills. One set is to use when you are traveling on a popular trail and are going to a popular area. Here the goal is to concentrate use and impact; we want to stay on established sites and trails. The second set of skills is for pristine areas. Here our goal is just the opposite. We want to avoid making noticeable trails or campsites, and thus we try to avoid sites where it appears someone has come before us. In both of these areas we want to stay off places that are lightly impacted or just beginning to show effects.”

Maker sure your troop understands what constitutes a popular, highly impacted area and a pristine, primitive areas before continuing on to the outdoor stations.

Ice Breakers

Suggested time: **5 minutes**

Use these only if you think it's necessary or if you are facilitating this program for an unfamiliar troop, the trip planning section below may be more than adequate as an ice breaker.

- 1) Have each Scout come up and pick a piece of equipment from a table laid out with common backpack contents. Go around and learn each Scout's name as they explain to the groups what use each piece of equipment has.
- 2) If the group has camping experience ask each Scout to tell (briefly) their favorite camping memory.
- 3) Ask each Scout, "What is the most important thing to remember when camping?" (This can be deliberately vague to mean either material items or skills).

TRIP PLANNING

Suggested Time: **20-25 minutes**

Concepts: 1 and 2

Go over the Essentials of Backcountry Trip Planning with the group.

Essentials of Backcountry Trip Planning

- 1) Establish a goal or reason for your trip. What badges can be earned? What environmental education lessons can be learned?
- 2) Pick a route.
- 3) Gather maps, and call the appropriate public land management agency for current information.
- 4) Double check that all participants are in appropriate physical condition and have enough experience for the chosen route.
- 5) Gather equipment.
- 6) Fill out itinerary form and give to a party staying behind.

Go back to numbers 5 and 6 and elaborate, see the Leave No Trace Equipment List and Itinerary Forms located in the Appendix of this guide. Solicit responses from the Scouts for #5 and write these on the board.

Have the equipment on hand to show the Scouts.

Explain briefly the objectives of the outside stations and how they work.

Outdoor Activities

Total suggested time: **130 minutes**

INTRODUCE THE STATIONS

Suggested time: **25 minutes**

Walk through the station areas with the whole group and explain the objectives of each one. Include concepts and give Scouts enough information that they can make informed choices.

Divide the group into small groups of three for the In-Camp, Campfires and Stoves, and Walking Wilderness stations. Instructors can run this section in one of two ways, either have all three stations going at once so each group is doing something different, or have all three groups working the same station in three different areas. Float between the stations and make sure each group knows what to do.

STATION 1 – IN-CAMP

Scouts choose an appropriate campsite from a given area. Preferably several appealing sites with different vegetation and/or impacts is within the station's boundaries. If not, instructors can easily create natural areas, such as lakes or rivers, boulder fields, trails, with flagging, signs, and tarps.

Depending on the group's experience, instructors may want to assign each small group a different scenario to work within. For example, one group is in a pristine alpine meadow with no established sites, another group is at a popular lake on Saturday night, etc.

Activities

- 1) Set up tent
- 2) Hang a food bag
- 3) Decide whether a minimum impact fire is appropriate or could be built in this site. If so, designate a place for a fire, but actual fire is built in the next station.
- 4) Dig a cat hole
- 5) Break camp and leave natural

Instructors should check on this group half way through the station so Scouts have time to tear down their camp again and make it look as if it were never there. Remind Scouts that they should save time for break down, and let them know how much time is left, but let them decide when to clean up. Be sure to check them again before rotating, and give them specific feedback either immediately or later.

STATION 2 – CAMPFIRES OR STOVES

Suggested time: **35 minutes**

Deciding how to cook your meals may prevent or cause damage to the land. Stoves are clean, lightweight, easy to use, and cause no impact. No trace fires take extra effort and care. A well prepared camper will not NEED a fire to keep warm and dry. At this station demonstrate and teach the proper use of stoves, and the various techniques to build minimum impact fires — pit fires, mound fires, and pan fires. Offer several different spots to build a fire, and materials to build a mound fire, a pit fire, and a pan fire. Have a backpack stove, fuel bottle, sticks of the proper size, perhaps even an entire fire ring showing the wrong way to build a fire with charred rocks and trash in the pit. Scouts should tell the instructor their assumptions about what type of use the site gets and the vegetation types it has, or as in the above station, instructors can assign scenarios.

Pit Fire To build a pit fire select a sandy area, such as a beach or dry, sandy wash. Dig a shallow pit (about the size of a Chinese Wok) using a stick or a small trowel. Build and keep the fire small. After scattering the cold, wet ashes away from water and the campsite, replace the sand. Camouflage the area by replacing rocks or stones and brushing scuffed areas. Rock rings are not necessary and blacken rocks permanently. They do little to prevent the spread of fires.

Mound Fire To build a mound fire select a durable surface and make a mound of mineral soil (the light soil *below* the top soil) four to eight inches deep, preferably on a plastic tarp. Gather soil from a remote source (like the root wad of a fallen tree). Build the small fire top of the soil. Scatter the cold ashes in the proper manner and return the soil to its original location.

Fire Pan Fire pans can be made from many materials including garbage can lids, pizza and cake pans, metal oil pans or store brought fire pans. Imagine building your fire on a pizza pan. You get the idea!

Throughout all of this training, stress that it takes some effort to have a Leave No Trace campfire. You shouldn't need a fire. If you do need a fire you probably are not prepared. Properly prepared

campers do not NEED a fire. Improperly prepared campers need a fire for a variety of reasons:
Some of these are:

- Wet clothes (inadequate rain gear)
- Wet boots (boots not sealed properly)
- Wet sleeping bags (make sure tent floor is seam sealed and put sleeping bags inside a plastic bag INSIDE a stuff sack — the stuff sack keeps the plastic bag from tearing, the plastic bag keeps the sleeping bag dry.
- Cold body temperature (inadequate or not enough clothing, use wool, polypropylene, etc. Wet cotton removes heat from the body 30 times faster than bare exposed skin, wool continues to insulate when wet).
- No stove.

Activities

- 1) Demonstrate how to properly use a stove. Have the Scouts start their own stoves. Discuss stove safety and proper transportation of fuel.
- 2) Have the Scouts build a mound, pit, or pan fire and be able to explain why one was chosen over the other.
- 3) Gather proper-sized firewood from appropriate locations.
- 4) Light a small fire (if appropriate).
- 5) Hold a discussion about the pros and cons of fires and stoves.
- 6) Leave No Trace. Obscure signs that fires ever existed.

Fire Pros: ambiance, ceremony, and warmth

Fire Cons: blackens pots, leaves scars, there may be no firewood (due to too many fires or high elevation), uneven heat, slow cooking, not dependable in wet weather.

Stove Pros: clean, quick, easy, even cooking, leaves no impact or scar, generally reliable

Stove Cons: can be an expensive initial investment, malfunctions are possible, but rare

Station 3 – Walking Wilderness

Suggested time: **35 minutes**

Many campers are quite conscientious around their campsites, but leave their no trace skills in their food bag when they leave camp. This station requires the instructor's closest attention and creativity, and many may choose to do it as a large group activity. Scouts are given scenarios and required to perform tasks in different trailled or trailless areas designated by the instructor. If a suitably diverse areas is not available, create areas with flagging and signs. It is important for the instructor to be knowledgeable about the variety of settings described below - and to be able to

convey that knowledge to the Scouts! Make the scenarios as realistic as possible. The scenarios below are designed to give instructors some ideas to start from, please be creative and update this syllabus with your own plans!

1) Popular, heavily eroded trail

You are hiking in a group of eight on a five-day overnight trip. The trail is rough and rocky, with frequent mud holes, although it is not raining.

- a) How should you approach this trail? (i.e. walk on the edge, walk in the middle no matter what the obstacle, etc.)
- b) Your group decides you want to try to make this trail more passable, what can you do? Have Scouts dig a drain, clean a drain or build a check dam.
- c) You encounter another group hiking and you notice their boots aren't muddy at all, and they are walking around most of the obstacles on the trail. You decide you want to encourage them to see their boots as a renewable resource, and the trails as a nonrenewable resource. What can you do? Do a role play.

2) Alpine meadow with braided trails

Same scenario as above, go through the same questions quickly.

- a) How are alpine meadows the same as a forest trail, how are they different?

3) Pristine meadows

- a) How should you walk through a pristine sedge meadow?
- b) You decide you want to camp in a sedge meadow, where is the best place, and how can you leave it in a natural condition?
- c) Now you are in a mixed meadow with heather, patches of sedge, wet spots, and boulders. Go through the above questions.

4) Bushwhacking through the forest

Conclusion

Suggested time: **25 minutes**

Set up a campsite (or have it set up already) and stage your conclusion with the whole group there. Briefly review all the activities. Ask questions to allow the participant to think and synthesize the information you've given them.

- 1) Explain how safety precautions are also good tools for no trace camping.
- 2) What are the most important things to remember when planning a camping trip?
- 3) Why is it important to wildlife proof your camp?
- 4) Does it matter if you choose to walk around a mud puddle, rocks and logs, or walk over snow in the trail? Why or why not?
- 5) Why is leaving no trace so important?
- 6) Explain how the approach in a low-use area is different than a high-use area.

Everyone should leave feeling like every little thing they do will make a difference. Through the leader's example and a little extra effort to minimize impact, Leave No Trace will become an integral part of their outdoor knowledge.

Links:

[National Outdoor Leadership School \(NOLS\)](#)

[Leave No Trace, Inc.](#)

[National Park Service](#)

[U.S. Department of Interior](#)

[U.S. Forest Service](#)

[Boy Scouts of America](#)

[Girl Scouts of America](#)

[Association for Experiential Education](#)