

# Project LNT



## Teaching Activities Based on the 7 LNT Principles

*“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.

- Plan Ahead and Prepare
- Camp on Durable Surfaces
- Dispose of Waste Properly
- Leave What You Find
- Minimize Campfire Impacts
- Respect Wildlife
- Be Considerate of Other Visitors

## 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 backpack 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

- 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 snacks 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 need 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 participants 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 and Camp on Durable Surfaces - 1

*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.
3. creating and traveling through an imaginary backcountry landscape. They will take two trips: For their first trip, 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

- A large shallow box or container (approximately 18" x 24") 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 one 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. Try to make the area as smooth as possible so everyone can 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 of 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 rocky 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 do the walking” in the moist sand. Instruct the group to identify one spot for a rest break. Let each person indicate a path before discussing.

### Time out for discussion: Trails

*Why did you choose your route?*

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 help prevent informal trails that increase soil erosion.

*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 surprising a bear or other wildlife. However, screaming, radios, and other loud noises intrudes upon the outdoor experience of all visitors and disturbs wildlife.

Summarizing key points:

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

### Scenario 2: Off-trail

Use a wide paintbrush or your hand to erase the trail from your backcountry landscape.

1. Present your group with a new scenario: imagine the group is planning a trip through a new backcountry area, which is rarely visited by hikers and campers. This area has no trail leading to the destination. The goal of the group is 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 were a desert environment? Would your choice differ if this were a 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. Many areas have regulations that limit 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.*

## Travel and Camp on Durable Surfaces - 2

*A Leave No Trace activity exploring campsite selection*

### What Your Group Will Learn

After participating this 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

- A copy of a backcountry scenario for each person.
- Small adhesive-backed colored dots to represent tents. Each person should have the same number of dots as the group would have assuming two people per tent. Thus, if there are ten campers, the group would have five tents and five colored dots.

### 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 comprised 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, which = 5dots.
4. Go over the directions for the following Alpine Scenario: have the group complete the activity and follow with a 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 protecting the water from contamination, allowing wildlife an opportunity to

drink, and caring for the riparian zones, which is the fragile, green area along the bank of the stream. 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**

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 to represent 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 the choice 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.*

## Dispose of Waste Properly - 1

*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 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

- Bag of trash: empty pop cans, foam cups, 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, and 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 include: burn it, bury it, and pack it out. Have 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 mention? (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 attracts bears and other animals to campsites.

Discuss the dangers of having animals in campsites. Also discuss dangers of animals becoming dependent upon human food, including increased aggression towards campers, problems with digesting human food, and packaging. When animals become dependent on human food, they most often must be destroyed.

### **Campfire Trash**

Have participants divide their trash into burnable and non-burnable 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, take a long time to burn, and release noxious chemicals when they are burning.

### **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 non-degradable piles. Define "degradable" if necessary.
2. Have the participants explain why they divided the trash the way they did. Have them re-adjust the piles if necessary.

### **Time out for discussion**

*How long does trash last?*

Ask group members to guess how long different kinds of trash lasts 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 while 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 landfills? 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.

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## Dispose of Waste Properly - 2

*A Leave No Trace activity exploring human waste disposal*

### What Your Group Will Learn

After participating in an activity designed to study human 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 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 –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 because this could cause a forest 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 that is not traveled 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 and 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 decaying 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 200 feet from water on rocks, in the middle of a trail, 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

- Old camping items such as a tent peg, frying pan, a piece of rope, burnt wood, blackened rocks, a child's toy, an axe, 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 you are doing this activity 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

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?*

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, and 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?

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## Minimize Campfire Impacts

*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.
4. Assessing the value of various cooking methods, including a camp stove, campfire, and a mound fire.

### Materials

- A backpack stove that is 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. After the group members help you demonstrate how to build a true Leave No Trace fire, they will compare the values of stoves and fires when making hot chocolate.

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 built 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 hot 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 see and 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 advantages and disadvantages 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 group to use a fire pan, and one group to use 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 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 and 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, which requires rehabilitation of the fire site. These fires are usually built with rocks that 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? Answers might include: stars more noticeable and able to hear small animal sounds more easily

### **Mound Fire**

Construction of a mound fire can be accomplished by using simple tools: a garden trowel, a 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 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 because 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 a 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.*

## Respect Wildlife

*A Leave No Trace activity exploring respect for wildlife*

### What Your Group Will Learn

After participating in an activity observing impacts on wildlife, group members will be capable of:

1. Describing what activities cause impacts to wildlife
2. Identifying the actions that can be taken to minimize impacts to wildlife

### Materials

- A garden hose or some other means of delineating the marshland area.
- Duck decoys and or silhouettes or pictures of ducks and a doe and fawn deer.

### Preparation

- Read the entire lesson plan and Background Information thoroughly.
- Lay out the garden hose or some other means of delineating the marshland.
- Place the duck decoys, silhouettes or pictures of the wildlife in the marshland.

### Grabbing Your Group's Attention

Your group is going on an imaginary hike to a marshland area where they will encounter a flock of ducks and a doe and fawn deer. This activity will help them think about their potential impacts to wildlife and how these impacts can be avoided.

In an indoor or outdoor setting, use a garden hose or some other means of delineating the marshland area. Place the duck decoys or some pictures or silhouettes of ducks and a doe and fawn deer in the marshland.

Explain to the participants that they will be hiking along a trail and will come to a marsh area with ducks, a doe and a fawn deer. Ask them to explain what actions they will take to not disturb the ducks and deer.

### Steps for Teaching the Activity - 15 Minutes

How Wild Is Wildlife?

The group is going to demonstrate the techniques they feel will help minimize impacts to wildlife in the marshland area. After they demonstrate the techniques, group members will move on past the marshland. The activity will help them become more aware of their potential impacts on wildlife and how they can avoid these impacts.

Ask the group to demonstrate as they approach the delineated marshland, how they will avoid disturbing the wildlife and how they will be able to tell if they were successful..

### Time Out for Discussion

After the group has passed the marshland, ask them why they used the techniques they did to minimize their impacts to the ducks and deer in the marsh. Ask them if there are any other techniques they could use. Emphasize the best means of determining their success is the degree to which wildlife have altered their normal behavior. In contrast, if the ducks fly or the deer run quickly away, you know you have gotten too close.

Quick movements and loud noises are stressful to animals. Considerate campers should observe wildlife

from afar to avoid disturbing them. They should give animals a wide berth, especially during the breeding, nesting, and birthing seasons. Food should be stored securely so wildlife will not be attracted to it. Garbage and food scraps should be kept away from animals so they will not acquire bad habits. Remember you are too close if an animal alters its normal activities.

### **Wrapping Up the Activity = 15 Minutes**

Your group is considerate of wildlife needs and knows how to respect wildlife.

They also know the techniques for minimizing their impact on wildlife and means to determining if they have been successful.

Have the group discuss some of the local areas they might visit that have wildlife. Are there any additional techniques they will need to use or specific precautions in order to avoid disturbing the wildlife species in these areas.

Talk about some of the behavior of your group or the behavior observed of others on previous outdoor activities that may have disturbed wildlife. What could have been done differently to avoid disturbing the wildlife? How can the group help encourage others to keep wildlife wild?

### **Additional Activities**

Visit a local wildlife refuge and have the wildlife managers explain how they recommend viewing wildlife species at the refuge without disturbing them in the wild. Take a walk with the wildlife manager around the refuge to practice the techniques.

## **Be Considerate of Other Visitors**

*A Leave No Trace activity exploring being considerate of others*

### **What Your Group Will Learn**

After participating in an activity designed to study the importance of being considerate of other visitors the group will be capable of:

1. describing the ways they can be considerate of other visitors.
2. helping others to improve their behavior, thus improving everyone's experience.

### **Materials**

- Backpacks full of gear for a hike.
- Two stick horses and two mountain bikes or two mountain bikers and two horsemen with horses

### **Preparation**

- Read the entire lesson plan and Background Information thoroughly. Have the group bring full backpacks as though they were going on an overnight camp out.
- Assign two individuals to bring their mountain bikes and borrow or build two stick horses. As an option, arrange for two local mountain bike club members and two horsemen to assist with the activity. Write to the BackcountryHorsemen of America and International Mountain Bike Association for literature, videos etc. on their activity

### **Grabbing Your Group's Attention**

This activity will help the group think about how their actions affect other people's experiences in the backcountry. It will also help them think about how to ensure all users have a good experience.

Your group has been excited for weeks about hiking into White Pine Lake. As you arrive at the trailhead to the lake, everyone grabs their packs and heads up the trail, running, shouting and kicking up their heels in fun. As you round the first bend, a group of youth, quite unfamiliar with horses, comes riding towards you down the steep trail on their horses.

Ask the group what changes they need to make in their behavior to allow the horsemen to pass safely by on the trail. What kind of behavior would help create a good relationship with these horsemen or other horsemen in the future? Answers may include stop and make no sound, move off the trail and let the horse pass by or continue down the trail and hope the horsemen get by OK with their own skills..

### **Steps for Teaching the Activity - 15 Minutes**

Doing Unto Others.....

Ask the group how they would have felt encountering the group on horseback. What was their first reaction? What were their first thoughts. Would they have felt better if they would have known beforehand what to do? Few hikers know they should pull off on the downhill side of the trail when encountering horsemen, and that a little conversation as you pass by one another may reduce the chance of the horses being spooked.

Ask the group what they should do if they are on the trail and are overtaking those on horseback. Horsemen need to be aware and remember the hiker is packing a load and has a right to be on the trail too. Ideally the horsemen will find a good spot and let you pass. Here again, a little light conversation as you pass will reduce the chances of the horses spooking.

Hikers may also want to consider taking off their packs so horses won't wonder what that strange thing is on their back.

Select one or two from your group to ride mountain bikes down a trail and a couple more to ride stick horses down the trail or consider recruiting a couple of local mountain bike club members and horsemen to ride down the trail. Have the remainder of the group hike up the trail and demonstrate how they would show respect for other users as they pass the horsemen and those on mountain bikes. The mountain bikers should slow down and or stop their mountain bikes to let the hikers pass.

### **Time Out for Discussion**

After the hikers have passed the horsemen and mountain bikers, pull the group back together at an appropriate location on a hardened surface off the trail for discussion. How did the horsemen feel about the hikers and how did the hikers feel about the mountain bikers? If everyone shows respect for the other users, all can share the trail and the outdoors without effecting the outdoor experience of others.

Other points for discussion to minimize the groups impact on other users may include the following: thoughtful campers travel and camp in small groups (no more than the group size prescribed by land managers). Keep noise down and leave radios, tape players, and pets at home. Select campsites away from other groups to help preserve their solitude. Always travel and camp quietly to avoid disturbing other visitors. Make sure the colors of your clothing and gear blend with the environment. Respect private property and leave gates (open or closed) as found. Be considerate of other campers and respect their privacy. Be friendly and smile as you encounter other visitors.

Any of these efforts work to create better understanding and appreciation between different backcountry user groups which benefits us all.

### **Wrapping Up the Activity = 15 Minutes**

Your campers are very considerate of all users of the backcountry! You group knows how to show respect for a variety of different users. How well have they learned to know what to do to make all users experiences more enjoyable?

Have the group brainstorm how they as a group will set the example for being considerate of other visitors they meet.

Challenge them to be the premier example of how one should act and respect others so others will in turn have a desire to do likewise.

### **Additional Activities**

Discuss with the group the following:

How would you like it if.....

- 1) Someone knocked down your tent.
- 2) Someone put water in your sleeping bag.
- 3) Someone shouted while your were quietly watching a deer.

Visit an equestrian group or horseback riding stable to learn more about the characteristics of horses. Invite members of the Backcountry Horsemen of America or other horsemen groups to visit with your group.

Meet with your local mountain bike club or write for information on mountain biking from the International Mountain Biking Association who have adopted the Leave No Trace principles as part of their rules for the trail.