

**Tread Lightly!  
and  
Leave No Trace**  
**15 Minute Lecture Series**



**ORDER OF THE ARROW**

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# Tread Lightly! and Leave No Trace

## LECTURE SERIES

### Program Note

You will be better prepared to teach these ethics and principles by reviewing "Teaching Leave No Trace" - available at [www.tcfroar.org](http://www.tcfroar.org).

Additional resources are available at [www.treadlightly.org](http://www.treadlightly.org) and [www.lnt.org](http://www.lnt.org).

These sessions are meant only as an introduction to Tread Lightly and Leave No Trace.

Each session should take 10-15 minutes to complete.

### Principle #1: Plan Ahead And Prepare

#### Suggested Materials:

- Compass
- Topographic Map (Preferably With Land Status)
- Flashlight & Headlamp
- Repackaged Food
- Water Purification - Filter or Tablet
- Waterproof Matches/Lighter
- Rain Gear
- Pocket Knife & Leatherman
- Sun screen - Sunglasses
- 1<sup>st</sup> Aid Kit & 1<sup>st</sup> Aid Spray
- Bug Bite & Spiroflex



Discuss each item as time permits. Discuss any item you wish as long as it applies to Tread Lightly! and Leave No Trace ethics. Be sure to end your presentation within fifteen minutes.

#### Lesson Plan:

What is the most important item you need for a safe and fun outdoor experience?

- The brain is the most important item you have. (You could use a plastic brain to make your point) Anything else you have may fail you. If you have prepared properly your brain will help you make decisions that will get you out of any situation you may find yourself in.

Why should we plan ahead and prepare?

- In most cases when we plan ahead we visit with different land management agencies. These agencies have many educational resources that are free to the public. Many times the agencies will provide someone to come to your meetings or outing to provide training. Planning ahead will make sure we don't build fires in prohibited areas, that our groups are not too large for the area, etc.

#### Presentation:

As time permits discuss with participants how each item listed above relates to proper planning and preparation. Discuss how the lack of these items may impact your experience and the environment.

## **Compass & Topographic Map:**

Hold these items up: What do these will tell us?

- Where we are relative to where we are going.
- The type of terrain we will be traveling over.
- The direction we must go to reach our destination.

An example: We plan a two day hike of only ten miles and have a pre-selected camp site at the end of the first day. Never having been on this particular hike we are unaware that to reach our campsite we have to increase elevation 1200 feet in the five miles to our overnight site. Because of the elevation increase, the distance, and the age of the participants we are only able to hike three miles instead of five to reach our campsite. It is now dark and we realize we can not reach our campsite tonight so we will camp where we are.

Can this decision impact our experience or the environment? If so, how?

- We could be camping by other campers affecting their experience.
- We could be camping by a water source and impact animals that rely on using the water at night.
- We could end up camping in a patch of poison ivy.
- We could trample growth that will leave a lasting indication that we were there. In so doing other hikers may choose to camp at the same site and impact an area that may not recover.

Discuss how repackaging or not repackaging food can have the same effect because of the extra weight being carried. The extra weight can cause delays, or even potential health problems that can affect the overall outcome of the outing.

## **Digging Tool:**

Hold up tool: What is this for? This relates to another topic we will discuss a little later. I bring it up now because if we don't plan ahead and have this tool with us we will not be able to properly apply another principle we will discuss in a moment.

## **Principle #2: Travel and Camp on Durable Surface**

### **Suggested Materials:**

- Pictures of cryptobiotic soil
- Folding Water Container
- Water Filter & Tablets
- Compass & Topo Map



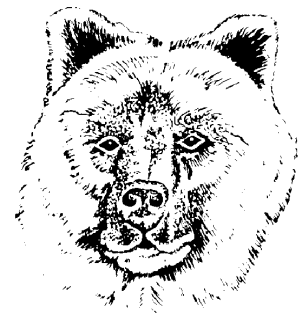
## **Lesson Plan:**

What is a durable surface? Durability refers to the ability of surfaces or vegetation to withstand wear or remain in a stable condition.

## **Presentation:**

**Give me some examples of durable surfaces:**

- **Slick rock**
- **Sand**
- **Gravel**
- **Established trails**
- **Snow**
- **Dry Grass**
- **An area that has already been impacted and has nothing else to loose.**



**Can you see any durable surfaces from where you are sitting or standing?**

- **Where?**
- **What kind of surface is it?**

**If there is a trail where we are traveling should we stay on it? Why?**

**A trail is often referred to as "A ribbon of death". Why is it called a ribbon of death?**

- **It is an area of sacrifice to protect the environment surrounding it.**

**Does it matter if we are single file on a trail?**

**What can happen if we spread out?**

- **Additional damage to the environment.**
- **Cause erosion - switchbacks are a real good example of how leaving the trail can harm the environment.**
- **Form "Ghost Trails", which is where we make our own trails that others end up following.**

**Who knows what a pristine area is?**

- **An area where there are no trails.**

**In a pristine area we should always spread out so we do not form any "Ghost Trails" that others may follow.**

**The only exception to this is in areas with cryptobiotic crust. What is crypto and how do you identify it?**

- **Tiny communities of organisms formed over hundreds of years.**
- **One footprint can destroy the crust and allow erosion.**
- **Crypto appears as blackish and irregular raised crust upon the sand.**

**Where do you find crypto?**

- **In dry or desert environments.**

**When you encounter cryptobiotic crust do the following:**

- **Stay on trails if any are present.**
- **If there are no trails walk on rocks or other durable surfaces.**
- **If there are no other options each person should step in the exact footsteps of the person ahead of them to minimize damage to the crypto communities.**

## **Principle #3: Dispose of Waste Properly**

### **Suggested Materials:**

- Box of dirt large enough for participants to see example of a cathole.
- Small garden trowel.
- Folding Water Container – Nylons and aquarium fish net.
- Water Filter & Tablets
- 1<sup>st</sup> Aid Kit & Personal Cleaning Items

### **Lesson Plan:**

There are two kinds of waste that we must dispose of properly. What are they?

- What we take in – trash.
- Human waste.

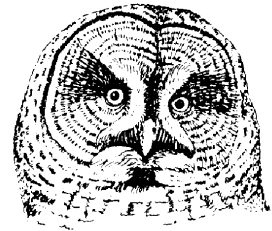
### **Presentation:**

#### **Pack It In, Pack It Out:**

Who has heard the saying "Pack It In, Pack It Out"?

What does it mean?

- We should pack out all of our garbage.
- We should pick up others garbage.
- We should take out left over food.
- We should leave no litter.



How can planning ahead and preparing help us dispose of waste properly?

- Repackage solid food in plastic bags and liquids in reusable containers for less trash.
- Take only the amount of food needed so you don't need to pack out waste and what is not used.
- Take food that doesn't require cooking.

How do we discard water used for cleaning our dishes?

- Pour water through filter such as an old nylon or fish net.
- Let scraps dry and discard with other waste.
- After straining broadcast water over a wide area at least 200 feet from any water source.

### **Solid Human Waste:**

The first thing to always remember when dealing with human waste is to stay at least 200 feet away from camp and any water source and in an inconspicuous site.

Show garden trowel:

The most effective way to discard of solid human waste is to bury it. We do this by digging a cathole (demonstrate).

- 4 to 6 inches in diameter
- 4 to 6 inches deep in areas with no dark top soil – like the desert.
- 6 to 8 inches deep in areas with a dark organic top soil.

**Why do we dig deeper in organic soil than we do in inorganic soil?**

- Organic soil uses micro-organisms to break down the solids.
- Inorganic soil does not have micro-organisms to break down the solids, it is done with the heat of the sun.

**Proper use of a cathole:**

- Dig the cathole.
- Deposit the solid human waste.
- Place toilet paper in hole with solid waste.
- Use a stick and mix the paper and solid waste together.
- Place several inches of organic soil on hole and mix with solid waste. This will speed up the decomposition process.
- Finish filling hole with organic soil.
- Place stick being used in an upright position to mark location of cathole.
- Sprinkle leaves, etc. over site to make it look more natural.

**Liquid Human Waste:**

As with solid waste you should always be at least **200** feet away from camp and any water source.

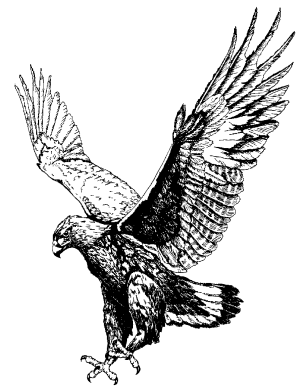
There are only a few guidelines for proper disposal of urine:

- Never urinate on plants as animals can harm the plant by going after that salts from the urine.
- Always urinate on solid surfaces like rocks so animals can cause no harm.
- Write your name with the urine while urinating. This will spread the waste and minimize the impact.

**Principle #4: Leave What You Find**

**Suggested Materials:**

- Plastic flowers
- Imitation Eagle feathers & Arrowheads
- Pictograph on rock
- Pot sherds - you can find an inexpensive ceramic bowl, break it and cover it with dirt for this demonstration.



**Lesson Plan:**

Have you been in the mountains and seen someone pick a flower for someone because it was so pretty?

Have you ever seen someone find something of historical interest like arrowheads or pot sherds, and take them?

Have you ever seen someone take something from the wilds that came from an animal?

**Presentation:**

(As you are telling the story slowly hand out plastic flowers to participants)

Imagine that you are out in the mountains one sunny morning on a short hike with some other Scouts. You enjoy being in the mountains with the cool, clear air, the smell of pine trees and sage brush. During the hike you see flowers with bees collecting pollen. You listen to the breeze as it moves through the trees and the bees as they buzz around the flowers.

You end the hike back at camp where you prepare lunch. While you are eating lunch you notice people from other campsites placing pretty flowers on their tables so they can enjoy them while they eat. After lunch you decide to take another hike. This time you are behind another group of campers.

(As you complete the story slowly take the plastic flowers away from the participants)

You notice during you hike that there are no flowers. Then you notice that the group ahead of you are picking all the flowers as they hike along the trail. You miss the color they gave to the forest. You miss the sound of the bees as they buzz around the flowers. And you think about how inconsiderate the other group is for removing something that belongs to everyone.

Have you ever done something like that?

When we are outdoors we may find items from nature, like feathers or bones, or items from past history like arrowheads and pot sherds. Have you ever experienced the joy a discovery like these bring?

Shouldn't we allow others that same joy of discovery by leaving things where we found them? Of course.

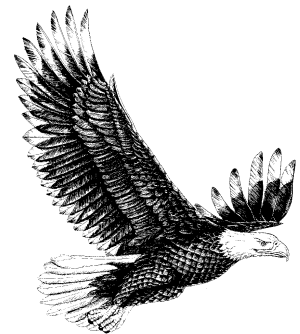
In fact many items we may find and keep may be illegal to take.

The only exception to leaving what you find is trash. Be sure to take all of that you can.

## **Principle #5: Minimize Campfire Impacts**

### **Suggested Materials:**

- Backpacking Stove, Tin Roaster Pan & Rock.
- Tinder, Kindling, Fuel, Matches & Lighter
- Flashlight & Headlamp
- Poncho
- Folding Water Container
- Fire Cloth & Hand Digging Tool
- Candle Lantern



### **Lesson Plan:**

Hold up the backpacking stove. Will using Principle #1, Planning Ahead and Prepare help us to know when we can use a fire and when we should use a stove?

### **Presentation:**

Can we build a fire any time and any place we want? Why or why not?

When would it be okay for us to build a fire?

- When it is safe.
- When it is allowed by law.
- When there is adequate fire wood.
- When you have the skill to build a *Leave No Trace* fire.

When would we use a stove and what are the benefits of a stove?

- When it is not safe to have a fire.

- When fires are not allowed.
- When we are in an area that does not have adequate fire wood.
- Stoves are lighter than wood.
- Stoves cook faster than wood.
- Stoves are easier than wood.
- There is no major cleanup after using a stove as compared to after using a fire.
- Stoves are safer.
- Stoves work in almost any weather.

### **A Leave No Trace Fire:**

- Do not use rock for a fire ring – all it does is permanently blacken the rock. (Show blackened rock)
- Do not place a fire against a rock wall or outcropping for the same reason.
- A fire pan is a good option – show foil pan on rocks – why do we place the pan on rocks? (So the ground is not sterilized)
- Mound Fire

### **Mound Fire Basics:**

- Place ground cloth on ground – this makes for easier cleanup after fire is out.
- Place 6 to 8 inches of mineral soil (sand or gravel—the root hole of a toppled tree is a good source for mineral soil) on top of the ground cloth.
- Build and use fire.
- Burn fire to grey ash and spread ash through trees and brush.
- Return mineral soil to area taken from.
- Shake off ground cloth and store.

### **Fire Wood Basics:**

- Never collect wood from standing trees, even if they are dead.
- Always collect wood away from camp.
- Always collect wood that is dead and on the ground.
- Tinder should be no larger than a toothpick.
- Kindling should be no larger than a straw.
- Fuel wood should be no larger than your wrist.
- A fire built with the right size of wood will burn down to a grey ash with no black cinders.

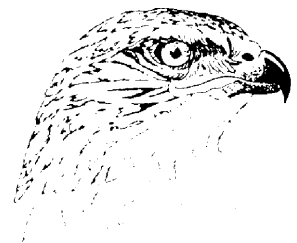
Pick durable surfaces for your cooking site because so much time is spent around the fire.

**Candle Lantern:** Use a candle lantern for light because it is safer than a fire.

## **Principle #6: Respect Wildlife**

### **Suggested Materials:**

- Binoculars
- Water Filter & Tablets
- Nuts & Crumbs



## **Lesson Plan:**

Have you ever seen anyone yell or honk at wild animals to make them run?

Have you ever made a wild animal run away from you?

Are we respecting wildlife when we do something that makes them run from us?

## **Presentation:**

It has been said that we should respect and learn about wildlife through quiet observation.

How can we tell when we are not respecting wildlife?

- When they change their behavior.
- When an animal runs from us.
- When we feed the animals.
- When we camp closer than 200 feet to water supplies.
- When we touch wild animals.
- When we make loud noises in the outdoors.

Are there times when our actions are more harmful to wildlife?

- When they are tending their young.
- When wildlife is nesting or denning.
- In the winter when they already have a low energy level.
- When they are eating.
- When they are injured.



How can we enjoy wildlife while showing them respect?

- Use binoculars or a spotting scope to view from a distance.
- Use a telephoto lens to view from a distance.
- Sit quietly in the outdoors and watch wildlife in their "home" to watch their natural actions.
- Make sure food is secure so we don't condition animals to be around humans.
- Watch animals at watering places.
- Do not feed wildlife nuts, crumbs or any other human food.
- Leave pets, especially dogs, at home.

Feeding animals often causes them to lose their fear of humans and causes them to do things that cause them to be killed, either by humans or other wildlife.

Do we do anything different when we know bears are around?

- Noise will generally cause a bear to leave the area.
- Cook at least 100 feet from your sleeping area.
- Hang food at least 100 feet from the cooking and sleeping areas.

Consider this: Have you ever had someone come into your home or yard that you didn't want to be there? That is how wildlife feels when we do not respect where they live, their home.

Items for discussion:

- Local areas they might visit that have wildlife.
- Specific precautions that could be used to avoid disturbing wildlife.
- How can we encourage others to keep wildlife wild.

## **Principle #7: Be Considerate of Other Visitors**

### **Suggested Materials:**

- Loud radio.
- Bright clothes.

### **Lesson Plan:**

Have you ever been forced off the trail by someone else?

Have you ever been kept awake at night by others being noisy?

Have you ever been about run over by a mountain bike on a trail?

### **Presentation:**

What do you think, how do you feel, when things like this happen?

How do we show respect for other visitors?

- Keep the noise down and leave radios, tape players and pets at home.
- Be considerate of other campers and respect their privacy.
- Select campsites away from other groups to help preserve their solitude.
- Travel and camp in small groups.
- Camp away from water sources.
- Move off the downhill side of the trail for horses.
- Take breaks off the trail on durable surfaces.
- Leave gates like you find them.
- Do not wear bright clothing.
- Be friendly and smile as you encounter other visitors.
- Do not leave paper plates, signs or ribbons for others to follow you.

## **Tread Lightly!**

### **Suggested Materials:**

- Toy boat
- Toy All Terrain Vehicle (ATV)
- Toy dirt bike
- Toy 4 wheel drive truck
- Toy Personal Water Craft (PWC)
- Toy Snowmobile



### **Lesson Plan:**

You have been learning about Leave No Trace, which is about non-motorized forms of recreation. Now we will discuss Tread Lightly which is about motorized recreation. Show the toys representing different types of motorized recreation.

### **Presentation:**

Do we only have to treat the land properly when we are hiking? Riding a mountain bike? Riding a horse?

Why?

According to a national survey completed by the Forest Service in 2000, 36 million individuals drove off-highway for recreation using a four-wheel drive, ATV or off-highway motorcycle, with an additional 31 million going out on personal watercraft and snowmobiles. An additional 79 million Americans drive some type of vehicle to their recreation destination. That means everyone who participates in outdoor recreation will use motorized vehicles in some manner.

The message is simple. Preserve our environment! Make the commitment to follow Tread Lightly! principles as summarized in the Tread Lightly! pledge. You will notice that it relates to Leave No Trace principles.

**"T"** in tread stands for **Travel and Recreate With Minimum Impact.**

**"R"** stands for **Respect the Environment and the Rights of Others.**

**"E"** stands for **Educate Yourself, Plan and Prepare Before You Go.**

**"A"** stands for **Allow for Future Use of the Outdoors, Leave it Better Than You Found it.**

**"O"** stands for **Discover the Rewards of Responsible Recreation.**

Everything you learn about Leave No Trace applies to Tread Lightly!. But it is important to remember that motorized vehicles can cause greater damage when poor choices are made. It is also easier to move around and cause a negative impact to a larger area. So while the same basic principles apply on foot or on an ATV there are additional concerns when you are involved in motorized recreation.

At times your choices may not impact the land but can impact other people and their outdoor experience. Always think about what you are going to do before you start your engine.

Let's review a few additional considerations when using an ATV or four wheel drive:

- **Make the commitment that you will only travel in areas that are open to your type of recreation.**
- **Only travel on routes designated for motorized use.**
- **Don't create new routes or expand existing trails.**
- **Have the right information, maps and equipment to make your trip safe, and know how to use them.**
- **Make sure your vehicle is compatible with road and trail conditions.**
- **Avoid sensitive areas like meadows and marshy areas.**
- **Only cross streams at fords where the road or trail intersects the stream.**



This is only an introduction to motorized recreation and hopefully it has alerted you to the importance of learning more before using your motorized vehicle for recreation. For each type of motorized recreation you will need:

- **Additional skills.**
- **Specific clothing or safety equipment for a safe experience.**
- **Rules specific to that activity.**

You can obtain more information on the Tread Lightly! website, [www.treadlightly.org](http://www.treadlightly.org). Please remember that in an age where outdoor recreation is the sport of choice, it is important for everyone to protect public and private lands through responsible actions. You can do this by following the Tread Lightly! and Leave No Trace principles and leave a good impression on the land and others.

Thank you!