



# Learning activities

[www.leavenotrace.org.nz](http://www.leavenotrace.org.nz)



Department of  
Conservation  
*Te Papa Atawhai*



*Leave No Trace promotes and inspires responsible outdoor recreation through education, research and partnerships. Our vision is for an environmentally aware and connected nation that cares for its special places, from the local beach or park to the remote wilderness.*

There is a lot of media coverage about environmental ‘crimes’ perpetrated by tourists and locals alike. At Leave No Trace, we believe that people want to do the right thing in the outdoors but lack the skills and knowledge to do so. This resource is part of an education programme that promotes outdoor skills and ethics.

Those of us who take groups into the outdoors have a responsibility to help educate people to take care of these places. The people you teach will then be able to make good decisions and take sensible actions to protect and preserve our environment.

The activities can be modified to fit your context and the group you are working with. If you develop a new activity or adapt an existing lesson, please let us know. We continually update our web resources and will add new lesson ideas over time.

Leave No Trace works with manufacturers, outdoor retailers, clubs, educators and individuals who share a commitment to maintain and protect the outdoors for future generations. You can do your part by becoming better informed, undertaking training and becoming an advocate for New Zealand’s precious places.

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# Clarifying values

## OBJECTIVE

These two linked activities help participants to understand the scope of the Leave No Trace (LNT) programme. The focus is on outdoor recreation impacts. While there are other pressing environmental issues, LNT helps people understand what is important in outdoor recreation contexts.

## MATERIALS

Impact cards

## DURATION

About 15 minutes

## AUDIENCE

Any age, this activity works best when participants have some outdoor experience.

## PART 1

### DIRECTIONS

In a comfortable place, preferably outdoors, ask participants to think of a favourite place in the outdoors. It could be a park, river, beach or forest. Picture yourself there ... see the sights, hear the sounds, feel the warmth of the sun.

Turn to the person next to you and tell them about your place – where is it and what makes it special to you?

Go around the group and ask each participant to tell the group about their special place.

## PART 2

### DURATION

30–60 minutes

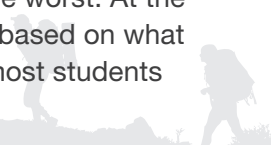
### DIRECTIONS

Write impacts on cards, using the impacts list opposite, for the appropriate venue (local parks or more remote areas).

Ask the group to stand in a circle.

Let's now look at some impacts. Imagine that these are happening in your special place.

1. Place 3–4 cards on the ground spaced around the circle. Ask students to spend a moment reading the cards and then stand next to the card they think is the worst.
2. Ask each group to talk among themselves about why they think theirs is the worst impact. They then choose a speaker to represent their group. (It is helpful to ask participants to talk up their own stance as opposed to criticising the stance of others.)
3. Speakers take turns to say why their impact is the worst. At the end, ask if anyone wants to move to a new card based on what they heard the speakers say. The card with the most students is put aside for the final round.



## Introductory activity



### PART 2 continued

Repeat steps 1–3 with three or four new cards for the next round. Have the final round where you put out the 3 cards selected from each round and ask students to stand next to the one they think is the worst. No need to discuss further which is worst as the arguments should already have been heard.

### CONCLUSION

Which impact is worst depends on what you value. We can make a difference by thinking about where we are going before we go there, and thinking about how our actions affect others and the environment.

### IMPACTS

LOCAL PARKS	BACKCOUNTRY
Big dogs off the leash, running and growling	Toilet waste at your camp
People taking too many shellfish/fish	Taking shortcuts on zigzags in a track
Dog poo in the playground	People feeding kea
Broken glass in the grass	Loud, drunk people in a hut
Rubbish piles next to the bin and plastic blowing around	Fire rings with broken glass and rubbish
People playing loud music that you don't like	People picking wildflowers
People picking flowers from a flower garden	Big groups on the track
People throwing rocks at birds	Muesli bar wrappers on the track
People running through a fenced off area with new plants	People shampooing and rinsing in the river
People having a fire when fires are banned	People taking items from a historic hut
	Dogs off the leash in nesting season
	Not cleaning gear after fishing a didymo river





## PLAN AHEAD AND PREPARE

Kia tika mai te mahere,  
i mua i te haerenga



## Plan Ahead and Prepare

Kia tika mai te mahere, i mua i te haerenga

# Lighten your load

### OBJECTIVE

To teach participants the importance of taking the proper gear on a day walk.

### MATERIALS

A daypack filled with items such as a torch, map, food, water, jacket, first-aid kit, radio, heavy bulky food, noisy toys, and a mix of other necessary and unnecessary equipment.

### AUDIENCE

Age 8 years upwards.  
Groups of any size.

### DURATION

15 to 20 minutes.

### DIRECTIONS

Prepare a daypack for a long walk, full of both necessary and unnecessary items. Tell the participants that you are going on a long walk and that you have your daypack ready.

- ▶ Ask each participant to feel how heavy your pack is.
- ▶ Each participant, one by one, reaches into your daypack and pulls out an item.
- ▶ The participants tell the group why the item would be necessary or unnecessary. For example, a jacket would be a good thing to take for unexpected weather, but a can of soup would not be a good item because it is heavy and not suitably packaged for a walk.
- ▶ After they have sorted through all the items, and removed what they regard as unnecessary, the participants feel the weight of your daypack again and see if they can feel a difference.

For additional discussion, ask participants what items might be important to take when going on an overnight or multi-day trip.



## Plan Ahead and Prepare

Kia tika mai te mahere, i mua i te haerenga

# Pre-trip planning

### OBJECTIVE

To identify the key aspects of Leave No Trace to consider when preparing for a trip.

### MATERIALS

(including but not limited to): Boots and gaiters, stove, cooking gear, fire permit, maps, weather forecast, compass, didymo fact sheet, fish identification sheet, track guide, miniature radio, trowel, toilet paper, bottle of wine/coke, axe, treats with heaps of wrapping e.g. Easter eggs in foil or wrapped sweets, pillow, iPod, camera.

### AUDIENCE

Age 14 years upwards.

### DURATION

20 to 30 minutes depending on group size.

### DIRECTIONS

Explain that Plan Ahead and Prepare underpins all other aspects of Leave No Trace. Tell a story of a long day in the rain, at the end of which, exhausted, hypothermic and ravenous, you pitch your tent at random, cook messily and rush to the toilet (too tired to bury it). In the morning you are greeted by a mess of epic proportions.

Discuss the hierarchy of needs, explaining that physical needs and social needs must be met before we can care for the environment. Set up all items on a tarp or table. Split into groups of two or three. Give each group some items of gear and ask them to explore the Leave No Trace implications of the items. Give them 3 minutes.

Ask each group for their analysis of the items. Ask other groups to contribute.

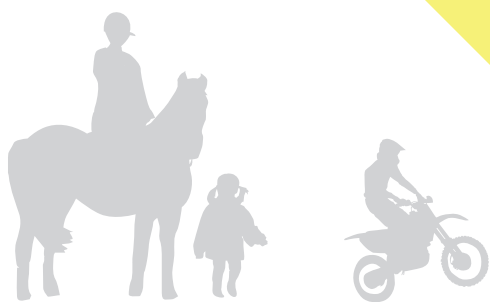
### CONCLUSION

Summarise Plan Ahead and Prepare key areas:

1. Trip expectations and goals
2. Knowledge of area
3. Weather and conditions
4. Environment (fragile areas/invasive species)
5. Equipment and gear
6. Clothing
7. Food







## BE CONSIDERATE OF OTHERS

Me whaiwhakaaro koe,  
ki ētahi atu



## Be Considerate of Others

Me whaiwhakaaro koe, ki ētahi atu

# It's not just you

### OBJECTIVE

To identify the different ways people use the outdoors and the considerations we must all make to be able to work together.

### MATERIALS

Flipchart or whiteboard.

### AUDIENCE

Any age.

### DURATION

30 minutes or more.

### DIRECTIONS

This is a simple discussion, beginning with each person talking about the different activities they like to do outdoors.

As each new activity comes up, write it on the board. Once everyone is finished, ask: "Have we left any types of outdoor activities off this list?" Again go round the group, allowing people to suggest other possibilities, such as farming, ecology, fishing, hunting, forestry etc.

Now suggest some discussion ideas to the group:

- ▶ Do our activities impact on any of the others, and if so, how?
- ▶ How can we be more aware and considerate of other users?
- ▶ What is the difference between recreation and livelihood?
- ▶ Does one have more of a right to the land than the other?
- ▶ How would people who make their living from the land feel if their work was affected by the general public?



## Be Considerate of Others

Me whaiwhakaaro koe, ki ētahi atu

# Clashing values

### OBJECTIVE

Identify different ways of enjoying the outdoors and how to be considerate of others.

### MATERIALS

None.

### AUDIENCE

Any age.

### DURATION

10 minutes.

### DIRECTIONS

*Sit everyone down in a quiet spot and say, "Let's take a minute to use all our senses to appreciate nature. Let's start by closing our eyes." Once all eyes are closed, trip over your pack, apologise, and then take a loud cellphone call. Finish up with the question, "How did that feel?"*

### DISCUSSION

Turn to the person next to you and discuss a time when your actions affected someone else's experience or their actions affected your experience in the outdoors. Think of both positive and negative examples. Allow 2 to 3 minutes, then ask for a summary of the discussions.

#### Discuss motivations for going outdoors

- ▶ Physical challenge
- ▶ Spiritual reasons
- ▶ Appreciation of nature
- ▶ Food harvesting

#### Respecting others

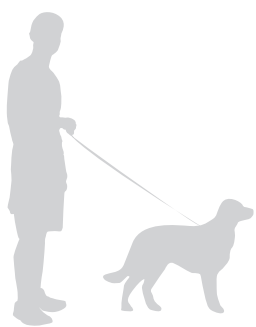
- ▶ How we travel
- ▶ Courtesy, in terms of promoting the outdoor community
- ▶ Where we camp
- ▶ Respecting locals and their property
- ▶ How we behave in huts
- ▶ How much noise we make

### CONCLUSION

The key to the activity is allowing everyone in the outdoors the freedom to choose their own experience. An interaction with others has a lasting effect on our memory of a trip and can be positive or negative.







## RESPECT WILDLIFE & FARM ANIMALS

Me kauanuanu  
koe ki ngā  
kararehe  
katoa



## Respect Wildlife and Farm Animals

Me kauanuanu koe ki ngā kararehe katoa

# On display

### OBJECTIVE

To teach participants how to behave when encountering wildlife.

### MATERIALS

An outdoor setting.

### AUDIENCE

All ages, groups of any size.

### DURATION

30 minutes.

### DIRECTIONS

Ask participants for a few volunteers to sit in the centre of the group.

Explain to everyone that it is lunchtime and these people are about to enjoy a meal from their favourite restaurant (insert the name of your local restaurant here).

While this is going on, you and several accomplices sneak around with binoculars and cameras. Get close enough to have your picture taken with the 'feeding wildlife' and maybe even get brave enough to touch them.

This can be exaggerated so it really hits home just how distracting people can be to wildlife.

Alternatively, carry out this activity at lunchtime, so people can get a real sense of what it's all about.

Questions to ask the participants:

- ▶ How did you feel when you were trying to enjoy your food and people were 'in your face'?
- ▶ How do you think people can impact on the feeding behaviour of wildlife and farm animals?
- ▶ What is lost in terms of our experience when animals are no longer behaving in their natural way?



# Animals acting up

## **MATERIALS**

Scenario cards.

## **AUDIENCE**

Any age.

## **DURATION**

30 minutes upwards.

## **DIRECTIONS**

*Hand out the following far-fetched scenarios and give the groups 5 minutes to work out how they are going to act this out.*

*Giving prizes for the Oscar-winning performances can be fun.*

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**TIP:** Leave the debriefing until the end, after all scenarios have been presented.

## **SCENARIO 1**

*A member of the public has fed a kea in the car park of a skifield. The kea has gone nuts and is being so destructive that a prominent TV interviewer has made their way to the skifield to interview bystanders, DOC staff and people affected by this incident today.*

### **TV INTERVIEWER - ASKING QUESTIONS**

Go around asking people what has happened, how have they been affected, what should the public be doing to stop incidents like this?

### **PERSON WHO FED THE KEA**

You are unaware of what you have just done: how it could be wrong? You continue to express your point and insist you are not in the wrong, arguing, "The birds were hungry, they won't get food if we don't feed them. We are helping save the birds".

### **DEPARTMENT OF CONSERVATION STAFF MEMBER**

You are calm and collected and advise the public that this is why DOC recommends that birds are not fed human food and why there are signs warning against doing this.

### **MEMBER OF PUBLIC WHOSE CAR HAS BEEN DAMAGED AS A RESULT**

You are feeling really angry at the person who fed the kea; they should have known that it would make the kea go crazy. You are angry, frustrated and yelling abuse.





## SCENARIO 2

*Protect wildlife and your food by storing food and rubbish securely.*

### PERSON

You were careless around the campsite and left rubbish on the outside of your pack. A sneaky weka has grabbed some rubbish without you noticing it.

### CHOKING WEKA

Come along, steal some rubbish off the pack and swallow some of the plastic. You are a bird in distress, and choking on plastic

### RESCUER

You are passing by and notice the weka in distress. You are trying everything possible to help this bird including CPR.

### DOC WORKER

Talk to the irresponsible person about the importance of storing rubbish and food away from animals' reach. This protects the animals from harming themselves and being exposed to food, objects and chemicals their bodies can't cope with.

## SCENARIO 3

*A dog owner has gone out into the bush at the weekend for an evening walk with their dog.*

*Along the journey the dog has found a kiwi in its nesting burrow and has killed the parent kiwi.*

### PARENT KIWI

Get chased by the dog, and play dead.

### BABY KIWI

Helpless and now alone, you are distressed and upset.

### DOG

Chase the kiwi, kill it and take it back to show to your owner.

### DOG OWNER

Take your dog into the bush without putting on a leash. Try to hide the fact that your dog has caught and killed a kiwi.

### MEMBER OF PUBLIC

Walk along the same track, see the dead kiwi and call DOC to report the find.

## SCENARIO 4

*Going on a trip, a tramper forgets that it is lambing season. The tramper separates a ewe from its lamb and the ewe panics, running away.*

### TRAMPER

Separate the ewe and the lamb then run around trying to help but separating more sheep.

### EWE

Run wildly into the distance.

### LAMB

Bleat pathetically.

### FARMER

Turn up on your quad bike, mightily unimpressed. Talk about banning access.







## CAMP AND TRAVEL ON DURABLE GROUND

Kaua koe e kōtiti  
i ngā arahikoi,  
kia tika mai  
koe te wāhi,  
hopuni ai



## Camp and Travel on Durable Ground

Kaua koe e kōtiti i ngā arahikoi, kia tika mai koe te wāhi, hopuni ai

# Dirty hands

### OBJECTIVE

To learn through direct experience using the sense of touch.

### MATERIALS

Blindfolds and an area with a range of different surfaces.

### AUDIENCE

Any age.

### DURATION

10 to 15 minutes.

### DIRECTIONS

Everyone partners up. One person in each group either closes their eyes or puts on a blindfold. The person who has their eyes open leads the other person to different types of surfaces (mud, gravel, water, tree roots, dead leaves etc). The person in the blindfold is to feel each surface to figure out what it is.

When both people from each group have had a go, gather everyone together and ask them what surfaces they found.

Then ask what do they think would be best to walk on? What would last the longest, flowers or hard mud?

With an older group you can further develop this discussion by relating it to their own experiences.





## Camp and Travel on Durable Ground (teachable moment)

Kaua koe e kōtiti i ngā arahikoi, kia tika mai koe te wāhi, hopuni ai

# Durable or fragile?

### OBJECTIVE

To discern between durable and fragile surfaces.

### MATERIALS

Outdoor setting.

### AUDIENCE

Any age.

### DURATION

15 to 10 minutes.

### DIRECTIONS

Choose an area with diverse surfaces, such as near a stream with rocks and a variety of vegetation. Have everyone go and stand on what they think is a durable surface.

### DISCUSSION

Each person explains why the surface he or she is standing on is durable. Ask each person in the group to think about what makes a surface more durable. Introduce the concept of plants being fragile or resilient. Explain about durable surfaces and what the definition of a durable surface is. Explain why it is important for us to tramp and camp on durable surfaces.

### FOLLOW ON

Tell the group, “As we travel, collect a list in your mind of the types of surfaces that we have passed through.”

At the next break, ask each person to name one surface they have seen. It is always surprising how many different surfaces we walk on.

Ethical dilemma: avoiding mud puddles by going around them keeps our feet dry but widens the track, killing plants and increasing erosion. What are you prepared to do to leave no trace?







## LEAVE WHAT YOU FIND

Kaua koe e raweketia  
ngā wāhi tapu,  
me ngā wāhi  
motuhake rānei



## Leave What You Find

Kaua koe e raweketia ngā wāhi tapu, me ngā wāhi motuhake rānei

# Personal treasure

### OBJECTIVE

To explore the impact of removing cultural artefacts from their original location.

### MATERIALS

Assorted natural items (or participants can collect their own).

### AUDIENCE

Schoolchildren.

### DURATION

30 to 45 minutes.

### DIRECTIONS

1. Each participant has a small area outside, or uses their desk top, on which they set up their own private world using their special treasures (5 minutes).
2. Each participant walks around and admires, but can't touch, other participants' 'land' and treasures.
3. Then the leader or one or two participants go and choose an object from someone else's land to 'keep'.

Discuss how the person who had the objects taken feels.

Explain how this has happened in New Zealand to special historic places and how it affects the feelings of the people for whom those places and items had meaning, both for them and their ancestors. It is important to leave what we find, so that we respect our cultural and historic heritage.





## Leave What You Find

Kaua koe e raweketia ngā wāhi tapu, me ngā wāhi motuhake rānei

# Cultural vandals

### OBJECTIVE

Objects in the outdoors have environmental and cultural significance.

### MATERIALS

Outdoor setting with sticks, stones and leaves.

### AUDIENCE

Any age.

### DURATION

20 to 30 minutes.

### DIRECTIONS

Imagine that you are the leader of a tribe or group. You need to make a religious/cultural symbol that represents your tribe, using the materials in the area (first discuss what are appropriate materials). Allow 5–10 minutes.

Each person shares their cultural symbol with the rest of the group and explains why it is important. All the tribal leaders then go and have a discussion about the best cultural symbol. While the leaders are talking, the facilitator pretends to be an uninformed trumper and goes through knocking down, removing and defacing the cultural symbols.

### DEBRIEF THIS EXPERIENCE

How did it make you feel as a tribal leader?

Explain the Leave No Trace principle: Leave What You Find.

Ask the group: “Can you think of a time when you have removed something from the environment?” Each person shares and discusses.

Explain the Leave No Trace principle: Leave plants, rocks, and animals as they are. Think about how these things are used in the natural world:

- ▶ Shells revert to calcium in the soil
- ▶ Feathers can be used by birds for their nests
- ▶ Rocks and wood protect insects from other animals and the elements.



## Leave What You Find

Kaua koe e raweketia ngā wāhi tapu, me ngā wāhi motuhake rānei

# Biosecurity

### OBJECTIVE

To learn about invasive species.

### MATERIALS

Drink bottles.

### AUDIENCE

Any age.

### DURATION

10 to 15 minutes.

### STARTER

Tell the group that they may not have realised, but they have just come through an area containing the Hauhangaroa mud mite (or call it by the name of whatever area you are in).

This mite is an introduced pest. It lives in mud and is transported by trampers and hunters on their boot soles and gaiters from one area to another. It can move into the nests of blue duck and suck their blood, putting a strain on their system which can mean they don't breed. To prevent the spread of the mite, we all need to clean our boots before continuing any further.

To illustrate your point about how native species can be overwhelmed by introduced pests, play a game with the group. Mark out a small area, have two people as a pair of blue ducks, the rest as mud mites (or possums vs trees etc). Get everyone to stand their drink bottles up in the area, spread out. Start with just one mud mite in the area vs the blue ducks. The mud mite goes around knocking the drink bottles over; if the blue ducks can stand them up again, this represents them staying healthy. Add more mud mites one at a time.



## Leave What You Find

Kaua koe e raweketia ngā wāhi tapu, me ngā wāhi motuhake rānei

### DEBRIEF THIS EXPERIENCE

What happened? How long does it take before the blue ducks are overwhelmed and all drink bottles are knocked over? What other examples can people think of where this happens/has happened in NZ?

Reveal to participants, if they haven't already guessed, that the mud mite is not real. How did people feel when you asked them to clean their boots?

If the course participants were willing to clean their boots, or weren't, how do they think people who have less of an environmental ethic might feel? Is cleaning boots an adequate measure to contain biosecurity threats compared with kauri dieback or didymo? Do we need more extreme measures? What could be the outcome of such measures?

### CONCLUSION

Ask each person in the group to think of an introduced species in New Zealand and what that species does. Each person shares and discusses.

Explain that Leave What You Find also means not introducing foreign species. Why do you think that fits in with this principle? (It won't be 'as you found it' if the ecosystem is changed.)







## DISPOSE OF WASTE PROPERLY

Kaua koe e tukinotia  
i a Papatuānuku

### BREAKDOWN TABLE

Orange or banana peel	up to 2 years
Cigarette butts	1 – 5 years
Leather	1 – 5 years
Wool socks	1 – 5 years
Plastic coated paper	5 years
Plastic bags	10–210 years
Plastic film container	20–30 years
Nylon fabric	30–40 years
Tin cans	50 years
Aluminium can	80–100 years
Plastic 6-pack holder	100 years
Glass bottles	1,000,000 years

PHOTO: Nir Ketararu



# Breakdown game

## OBJECTIVE

To provide a visual and hands-on activity to explain how long it takes for different materials to decompose.

## MATERIALS

Pictures of the items listed in the breakdown table and printed cards or pages to match the timeframes for the items. Each card/page contains a single time period (e.g. 1–5 years, less than 2 years, 100 years), representing the number of years it takes for one of the pictured items to decompose.

## AUDIENCE

All ages and groups of any size. (With up to 22 people, each person can take an active part in this activity.)

## DURATION

15–20 minutes.

## DIRECTIONS

Distribute one picture to each participant, or as many to each participant as necessary to distribute all of them as evenly as possible. Now evenly distribute the cards/pages with the time periods marked on them. Try to ensure that no one is holding a picture that matches its associated time card/page. Have the participants roam around trying to figure out which pictures match up with which time periods. As they make their matches, you can comment on their accuracy and have them try to correct any errors.

## BREAKDOWN TABLE

This activity gets participants talking to each other to figure out how long each item takes to decompose (see table opposite).

A final activity is to have all members of the group line up in the order shown on their card from the shortest time to decompose to the longest time.

## REVIEW

Breakdown rates depend on the environment (moisture, warmth, micro-organisms...) and these are just guidelines. The important part is that it takes a lot longer than most people think for these items to break down.

Plastic does not necessarily biodegrade but rather breaks down into smaller and smaller particles and gets into the food chain. Think about the amount of rubbish that is left each day, week, month or year, the rate of breakdown and the potential for harm. Often we have underestimated the harm that our rubbish causes. It is best to pack it in and pack it out.



# Poo Olympics

## OBJECTIVE

Understand how to dispose of human waste in the outdoors.

## MATERIALS

- ▶ Prizes (optional)
- ▶ Trowels
- ▶ Poo pot
- ▶ Hand sanitiser
- ▶ GPS for measuring 50 m (or pace it out)
- ▶ Object to drop

## AUDIENCE

Age 10 years upwards.

## DURATION

30 minutes.

## DIRECTIONS

On arrival at camp on the first night, either work individually or split into groups of two or three. The objective is to dig the perfect hole to poo in. Points will be awarded for the D's: **DISCLOSURE** (tell someone), **DIRECTION**, **DISTANCE**, **DEPTH**, **DIAMETER**, **DISGUISE** and **DISINFECTION** as well as the comfort and aesthetics of your location.

Before we start, what do you know about direction? (Away from what – water, tracks, people, camp?) And distance? (50 m.) The first consideration is distance; let's see who can get closest to 50 m ... Get participants to count paces and all go in the same direction. Points are allocated to those who get closest to 50 m.

Now find your spot and dig your hole. You have 5 minutes. Do a 'home and garden tour' with everyone evaluating. Emphasise:

- ▶ Depth (10–15 cm).
- ▶ Diameter (large enough to avoid messes).
- ▶ Drop.
- ▶ What to do with toilet paper? (In the hole with the poo.)
- ▶ Disguise – the judges turn away and then try to locate the improvised toilet.
- ▶ Disinfect – using hand sanitiser.
- ▶ Arbitrary judgement of aesthetics and comfort.

Then award the prizes.

The holes can be left overnight so they are ready for use in the morning (skip the disguise step).

Groups can add to the 'D's'.

## CONCLUSION

Get the group to reiterate the 'D's'. Alert the group to the dangers of getting lost on the way to the toilet and also the practicalities: 50 m may not always be possible. Do your best and be proud.



# Dilution is the solution to pollution

## OBJECTIVE

Identify different types of waste we produce.

## MATERIALS

Best completed at camp.

## AUDIENCE

Any age.

## DURATION

5 minutes.

## DIRECTIONS

*Borrow someone's cup of water (let them in on the plan before you do this!) and do your dishes in it complaining loudly about what a mess their cup is and how dirty. Hand the cup back with dirty dishwater in it. The owner is outraged. "But what's your problem, it's biodegradable detergent ..."*

## DISCUSSION

Why is this relevant for Leave No Trace ethics? Get the group thinking about the plants and animals that live in streams.

## CONCLUSIONS

"Imagine the strength a detergent must have to strip day-old grease from a greasy pan. Now imagine what happens when that detergent comes into contact with the slippery skin of a fish or the waxy coating of a plant" (*Cradle to Cradle*, by Michael Braungart and William McDonough).

Waste is dirty water, dinner leftovers, shampoo and soaps. How do we need to dispose of these? Away from water so they can be filtered by the soil. Dilution is the solution to pollution. While biodegradable detergents break down reasonably rapidly in the environment, until they do, they are still harmful to plants and animals in the water.

## DIRECTIONS

*"You guys look great, let me take some photos."  
Pull your camera out of your pocket, inadvertently pulling out a wad of rubbish (pretend not to notice and take the photos).*

## DISCUSSION

Accidental rubbish is also a problem: discuss temporarily stuffing rubbish into the lid of your pack, pockets and other places where it is likely to fall out and then get blown around the countryside. If you find some rubbish on the track where would you put it? Brainstorm best options.

## CONCLUSION

Dispose of waste properly: pack your rubbish where it won't come loose and be left behind to have a negative impact on plants, animals and others.



## MINIMISE THE EFFECTS OF FIRE

Me tupato koe ki  
ngā ariā o te ahi



## Minimise the Effects of Fire

Me tupato koe ki ngā ariā o te ahi

# Night lights

### OBJECTIVE

To demonstrate alternatives to campfires by having each participant make their own night light.

### MATERIALS

Brown paper bags (recycled brown ones are inexpensive and easy on the environment); scissors, craft knives, or other cutting tools; stencils; sand; candles or tea lights (small decorative candles that come in their own recyclable aluminium cups and are a safety-conscious alternative to tapered candles); and small cutting boards or thin pieces of wood that will easily fit into the brown paper bags.

### AUDIENCE

Age 8 years upwards.  
Groups of any size.

### DURATION

30–45 minutes.

### DIRECTIONS

1. Give one bag to each participant and tell them that they are going to be making a 'campfire' in a bag.
2. Using the cutting board(s) or the pieces of wood and the stencils, participants can cut designs into each side of their bag. This will allow light from the candle to shine through. Remind the participants to be careful with the sharp cutting tools.
3. Once the designs have been cut into the bags, fold the top edge of the bags down about an inch for extra sturdiness.
4. Pour sand into the bottom of each bag, approximately one to two inches. The more sand, the more stable the night light will be.
5. Place a candle or tea light in the middle of the bag, anchored firmly in the sand.
6. Ask participants to put the night lights where they would like them to sit, and then light them carefully.
7. Discuss how night lights can provide a nice, easy alternative to campfires, which can be damaging to the environment if not made properly. Night lights provide light and ambience and are a great campfire substitute.

### SAFETY ADVICE

Keep away from flammable vegetation or materials. Not recommended for use in a strong wind. Always obey fire regulations. Never use them inside a tent.





## Minimise the Effects of Fire

Me tupato koe ki ngā ariā o te ahi

# A heated debate

### OBJECTIVE

Understand the negative and positive aspects of fire.

### MATERIALS

None.

### AUDIENCE

Age 4 years upwards.

### DURATION

20 to 30 minutes.

### DIRECTIONS

What do you think of campfires? Line up on a continuum from one end (fires every night if possible) to the other end (no fires ever). Explain why you are in the position you have taken (start at the extremes). This subject is controversial.

### DISCUSS HISTORY

- ▶ Pre-history, Māori/Asian/ European

### ADVANTAGES OF NO CAMPFIRE

- ▶ You can hear night birds
- ▶ You can see the Milky Way and stars

### NEGATIVE ASPECTS OF FIRES

- ▶ Out of control fires can be the single biggest impact
- ▶ Soot-scarred rocks
- ▶ Ashes blowing around and heaped up
- ▶ Partly burned logs
- ▶ Food and rubbish
- ▶ Alters environment, alters organic matter up to 6 cm below the soil surface.
- ▶ Completely sterilises the topsoil to 2 cm depth
- ▶ Soils are robbed of important sources of nitrogen, carbon and organic matter
- ▶ Fallen logs help stop soil erosion

### MINIMISE IMPACT

- ▶ Avoid fires – check the environmental conditions. Is it a hot summer or is there a fire ban?
- ▶ Ask: Do we need a fire and can we minimise the impacts?
- ▶ Ask: Where is the wood from? Is that a sustainable source?

State what 'minimise campfire impacts' means. Demonstrate the ability to minimise the impact of campfires, including:

- ▶ Camp stoves
- ▶ Established fire rings, fire pans, fire mounds
- ▶ Choice of firewood (dead and dainty; small enough to be broken by hand). Choose an appropriate site for your fire that will minimise its effect e.g. a dry river bed. Check the wind direction.

## Minimise the Effects of Fire

Me tupato koe ki ngā ariā o te ahi

# Building a *Leave No Trace* fire

### OBJECTIVE

Build a leave no trace fire.

### MATERIALS

Suitable location.

### AUDIENCE

Age 4 years upwards.

### DURATION

Several hours.

**NOTE:** Ensure that you check on local fire regulations and conditions before you take this class. Choosing not to have a fire is often the best practice.

### DEMONSTRATE A MOUND OR PIT FIRE

Ideally your fire will be in a dry stream bed or on a beach. If this is not possible, then the mound fire allows you to have a minimum-impact fire, but requires considerable work. Gather inorganic soil (sand/gravel) and build a 'volcano' with a crater. The bottom of the crater should be at least 15 cm above the soil surface. This takes lots of gravel/sand. *The thickness of the mound is critical to insulate the ground below from the heat of the fire. Building the mound on top of an old tarpaulin, rubbish bag or similar will allow for easier removal at the end.* The fire is made in the crater and by using small pieces of wood; you can burn the wood to ash.

After the fire, wet the area thoroughly and use bare hands to confirm that it is cool all the way through. Disperse any ashes and return the gravel to the source. There should be no trace left of the fire, and you can challenge people to find the location of the fire in the morning once you have cleaned it up.

### REVIEW

Fire is potentially the biggest single impact we can have. Treat fires with respect and caution.

### MOUND FIRE

