Subject: Pooping, Peeing in the Woods and Hygiene - Washing and or Sanitization Hands

Catchy Title:

Presenters Name:

When to teach this topic: This topic should be taught before needed. So at the trailhead or last restroom make sure that people use it. During the first 1hr on the trail make sure that you teach when, where and techniques for urinating in the outdoors. Then later in the day either at camp or before camp if it is getting dark teach pooping in the woods.

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

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

Materials needed:

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

- Leaders will understand why catholes are a good way to dispose of human feces.
- Leaders will understand how to select an appropriate site.
- Leaders will understand the proper dimensions and process for using a cathole.
- Leaders will understand techniques for teaching and alleviating fear around going to the bathroom in the woods.
- Leaders will know ways to sanitize hands considering LNT ethics.
- Leaders will know when it is proper to sanitize hands.
**Introduction/Hook:** If you are going to take a horse to water...make sure it’s thirsty. Make sure you are doing this at a time when the participants need this information and are ready to hear it (are people warm, hydrated and well fed?).

**Very short activity/introduction:**

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

Explain & Demonstrate:

Step 1 __ minutes

Step 2 __ minutes

Step 3 __ minutes

Step 4 __ minutes

Practice (individually if appropriate):

**How to Assess each individuals skills:**

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

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**Evaluation:** Analyze the strengths and weakness of the lesson as it actually happened. Include things to avoid next time you teach the lesson, and what went particularly well. How was the timing of the lesson?
It wasn’t long ago that people discovered that uncleanliness shortened life. For millennia, humans had left their refuse wherever it fell. Not until they became creatures of villages, towns, and finally cities did people make a connection between the growing heaps of trash and human refuse and plagues of cholera, yellow fever, and typhoid. In 2500 B.C., the Mohenjo-Daro of southern Asia established the first town drainage system for human sewage. Devising means of disposal of other waste products of civilization took a little longer. The Greeks built a municipal city dump in 500 B.C., and Rome even had a collection system to clean up after the gladiator games in the Colosseum. On especially festive days, some five thousand bodies of gladiators, elephants, and tigers were carted to pits at the edge of the city and left to rot.

Today, most of us who visit the backcountry return to life in a city. We live in a society that has learned that the waste products of civilization are a source of human disease and has taken steps to remove them from our close association. Consequently, we are often uncomfortable talking about waste. As urban dwellers, we accept the modern-day mystery of waste
management, complete with flush toilets, a municipal septic system euphemistically termed a “water-treatment facility,” and a growling metal garbage truck that comes through the alley and ingests last night’s leftovers.

But where do these leftovers go? Most of us either don’t know or don’t want to know. For generations now, we have given the responsibility for what has always been an unpleasant task to someone else.

The problem comes when we transfer this attitude—avoiding responsibility for our waste—to the backcountry. Until recently, most of us simply discarded our refuse—from human body waste to pop-tops—and moved on. And we were thoughtless about it. If the Forest Service provided no garbage collection at a campsite, we dug a hole and buried our cans. If we found no outhouses, we chose the closest clump of trees and left our toilet paper to blow with the wind. Once we traveled on, we didn’t have to deal with the consequences of our waste.

Fortunately, today, although proper disposal of waste and trash is still a problem in some backcountry areas, we’re cleaning up our act. Just as important, we’ve begun talking about it. “Pack it in, pack it out” is a popular saying now found on signs at nearly every trailhead. As longtime researcher Bob Lucas has observed, “Trash and litter in wilderness are much less common than twenty years ago, despite increased use.”

Trash and litter disposal are easy. But what about in those popular areas that are visited by lots of people, where repugnant human waste is everywhere?

**Backcountry Sanitation**

In their attempts to change visitor behavior, backcountry managers have successfully used maxims such as, “Take only photos, leave only footprints.” But by now you know that even footprints exact a heavy price from the land when too many fall in one place. Likewise, the hope of leaving only footprints when traveling on a backcountry journey ignores the simple fact that we humans regularly consume water and food and in return produce urine and feces. Unless we are willing to pack it out, which is quite difficult on multiday adventures, we have little choice but to leave our body waste as well. (Packing out feces is, however, a requirement on many rivers and in some popular climbing and day-use areas.)

Many visitors argue that body waste is part of a natural cycle, and if other animals disregard its deposition, so should we. In the case of urine, this is generally true; it is mostly a harmless product. Nevertheless, in tropical countries where schistosomiasis is common, urine carries the infecting parasite. Urine also attracts wildlife, and these animals may defoliate plants and dig up soil in their eagerness to ingest its salts. Urinating on rocks or in nonvegetated areas far from a water source is a simple solution to both of these problems.

Solid waste is a different matter. Undeniably, wild and domestic animals defecate almost anywhere in the outdoors, and a certain amount of “natural” fecal deposition is the result. But in the case of humans, the potential for impact is almost limitless. We simply can’t ignore the fact that we have the ability and the responsibility to do a better job with our disposal of solid body waste.

The problem is that fecal waste is often the medium for disease; pathogens spread from one animal to another by means of feces. After the waste is deposited, some of the most common means of transmission are direct contact with feces, contact with a contaminated insect, or ingestion of contaminated water. With so many people heading into the backcountry these days, improper disposal of human waste can produce a significant health hazard for visitors.

**Water Pollution.** In many wildland areas, water is a limited resource. Yet water is in demand for a variety of compet-
ing uses; it is necessary for plants and animals, and it's a focal point of most campsite activities. Life usually suffers when the quality of water declines, but those consequences are great when humans are the users. Once pathogens in sufficient quantity find a way into water, the risk of human disease increases dramatically.

How does the quality of water measure up in backcountry areas? The data is sketchy, but preliminary evidence indicates that most backcountry waters have surprisingly low levels of bacterial contamination. In one study, researchers led by Don Erman from the University of California at Berkeley investigated the water quality of Rae Lakes, one of the most popular lake basins in the Sierra Nevada. They found that bacterial levels in the water were usually low enough for safe drinking.

But if you're starting to feel smug that the research backs up what you've always hoped was true whenever you took a sip from a mountain stream, don't. It is impossible to monitor the quality of every water source, and because animals other than humans often contribute to bacterial counts, contamination can and does occur in some areas. In Grand Canyon National Park, Arizona, coliform bacteria levels are generally low except when major tributaries are in flood. The source of contamination at these times appears to be domestic livestock or wildlife. Springs and streams in Great Smoky Mountains National Park also exceed maximum permissible levels of coliform bacteria. Again, contamination does not appear related to recreational use. Another study examined water quality in a Montana watershed that had been closed to backcountry travel. Researchers discovered that contamination actually decreased when the watershed was opened to visitors, presumably because wild animals—the principal contaminators—were scared away.

It is also important to remember that coliform bacteria is only one of many kinds of pathogens found in water. In many backcountry waters, another waterborne pathogen has reared its ugly head—a devastating intestinal protozoan called *Giardia lamblia*, which causes giardiasis. Although this disease is usually not fatal, some victims say that before you recover, you may wish it were. Cases of giardiasis have been increasing, but it's not clear whether contamination is spreading or whether the disease is merely being diagnosed more frequently. What is clear is that water in even the most remote backcountry can be contaminated with *Giardia*. In a study of pristine streams in the Sierra Nevada, Forest Service hydrologist Thomas Suk and his colleagues found that 35 percent of the water tested had dormant *Giardia* cysts. Exactly who are the culprits are—humans, domestic cattle, or wild animals, such as beavers, ground squirrels, mice, and chipmunks—is uncertain and perhaps irrelevant as far as users are concerned. What is important is that Suk's research shows that backcountry waters are contaminated to a significant degree. Moreover, the disease caused by *Giardia* will spread with further fecal contamination by both humans and other animals.

Thus, although most backcountry waters may receive a passing grade on bacterial counts, many fail miserably because of this tiny microbe responsible for an extremely painful and debilitating form of dysentery. The warnings on backcountry and trailhead signs are true: All users who don't sterilize their water are at risk, and sanitary precautions should be taken to minimize the further spread of giardiasis through human fecal contamination of water.

**The Choices.** The most responsible—but probably not the most practical—way to deal with human waste is to pack it out. This may be relatively easy for boaters and some pack stock parties, because they can carry portable toilets. Backcountry are understandably more reluctant to take this step. For the vast majority who choose to leave their waste in the backcountry, proper disposal should ultimately accom-
plish three objectives: minimize the chance of water pollution, minimize the chance of anything or anyone finding the waste, and maximize the rate of decomposition.

For years, many established campsites in popular areas have been either blessed or cursed (depending on your point of view) with a traditional solution to the problem of human waste: outhouse toilets. Some users favor toilets as a necessary feature; others rebel at obtrusive structures in otherwise wild country. In the Bob Marshall Wilderness complex, Bob Lucas found that public opinion on this subject has shifted from positive to negative in the last two decades. In the Desolation Wilderness in California, visitors opposed outhouses in 1970 and they still oppose them today, despite heavy use of the area.

Considerable ingenuity has been devoted to developing alternatives to toilets in the backcountry. Some suggest the use of communal, user-created latrines; others advocate catholes—individual, shallow scrapings within a few inches of the soil surface. A more recent recommendation—appropriate only in certain uncommon situations and for particular populations—is surface disposal.

The rationale for a latrine is to concentrate waste in one, properly located place, thereby reducing the risk of water contamination and accidental direct contact. Unfortunately, however, by concentrating human waste, decomposition rates are greatly reduced. This gives animals time to find, dig up, and scatter the remains, which in turn increases the chance for human contact. Moreover, if not properly sited, latrines have a high potential for causing water pollution. Latrines also create a large area of disturbed soil, not only because of their initial excavation, but because of unavoidable trampling and compaction of nearby soil. Finally, they are frequently overfilled, making it difficult to cover them properly when they are finally closed. For all these reasons, latrines have generally fallen out of favor. They may be appropriate, however, when camping with small children or when staying in a specific area with a large group for a long time.

Most managers generally recommend individual catholes instead of latrines. The common belief has been that soil microorganisms located in the organic layers close to the surface decompose feces in a short time, rendering them harmless. Researchers at Montana State University, led by Ken Temple, tested this theory by burying feces inoculated with pathogens underground for a year. Their results were disappointing. Substantial numbers of pathogens survived the entire year buried in the most organic part of the soil. Furthermore, numbers of pathogens scarcely varied with either depth of burial or the type of site. Clearly, the idea that shallow burial renders feces harmless within a short period is wishful thinking; buried feces can remain a health hazard for years.

Because decomposition of waste is so slow in both latrines and catholes, some users advocate surface disposal. Decomposition is more rapid when feces are exposed to the sun and air than when buried. Unfortunately, surface disposal increases the likelihood of contact by humans or insects and, if improperly located, of water pollution as well. It takes a high degree of skill to balance the social and ecological factors associated with surface disposal. For these reasons, surface disposal is illegal and inappropriate in many places.

The Best Choice. It seems clear that no means for the disposal of human waste in the backcountry—toilet, latrine, cathole, or surface disposal—is without problems. None can be unconditionally recommended for every situation. That is why packing it out is clearly the best solution, although it’s not the most practical one in most cases. Use toilets or latrines where they have been provided. In the majority of places—those in which toilets and latrines are not provided—you must juggle the goals of minimizing water contamination and discovery by others with that of maximizing decomposition.
Where use is extremely low and soils are absent, surface disposal is a viable option (if it is not prohibited), because there is little chance that someone will contact your feces before it has decomposed. To use this method, choose a site that is not likely to be visited by others, is more than two hundred feet from water, and has a dry, open exposure. Scatter or smear the feces with a rock or stick to maximize exposure to the sun and air.

In more popular places that are regularly visited by people, surface disposal should not be considered. Here it is better to bury waste in catholes. Even though decomposition is slower than at the surface, it is more important to decrease the likelihood of contact with others. When traveling in a group, remember that the main objective is to disperse everyone’s waste, not concentrate it. Choose a site that is out of the way, where other people are unlikely to walk or camp, and that is more than two hundred feet (about seventy adult steps) from water, trails, and camps. Dig a hole six to eight inches deep and four to six inches in diameter. A small garden trowel is useful for this purpose. When you are done, use a stick to stir in the soil as you cover your cathole with a least two inches of topsoil, and camouflage the surface.

Although latrines are the least desirable method of human waste disposal, they may be necessary in areas where the number of disposal sites is severely limited. They may also be appropriate for long stays by large groups in popular areas. This is especially true of inexperienced campers who may be unable to select suitable sites for catholes. Dig the latrine when you first arrive in camp, and make sure everyone knows its location. A Sierra Club study of large camping groups found that selection of a latrine site was often given low priority by experienced group leaders; consequently, less knowl- edgeable members frequently placed the latrine too close to campsites or water sources.

A modification of the latrine idea is to dig a shallow trench or the equivalent of a series of catholes for a group to use during an extended stay at a single site. The advantage of
this technique is that an appropriate site still can be selected by an experienced person, but with a trench the feces are not concentrated in one large hole. The disadvantage is that the technique requires extensive soil disturbance and therefore is really only appropriate in areas with exposed mineral soil or unvegetated forest litter.

If you have to dig a latrine, make it wider than it is deep, but at least twelve inches in depth to minimize the chance that it will be excavated by animals or exposed by other people. After each use, cover the feces with soil and compress with a foot or a shovel to encourage decomposition. Once the latrine gets within about four inches of the surface, fill it. (See “River Sanitation” in chapter 7 for a description of a portable latrine method.)

Trash and Waste Disposal
In addition to natural by-products, we humans create additional waste. In the United States alone, each person produces a daily average of five pounds of garbage; over half a million tons of garbage are deposited across the country every day. With our growing mobility, it is inevitable that some of this effluent spills into the backcountry. In 1975, for instance, more than twelve tons of trash and garbage were removed from Washington’s Pasayten Wilderness using pack mules and helicopters. Undoubtedly, much more was left behind. Large quantities of litter and waste are still being removed from the backcountry today.

Besides disposable food containers such as cans, bottles, and plastic, we’re littering aluminum foil, toilet paper, tampons, and leftover food, just to mention some of the more commonly found items. Although antilittering campaigns have done much to raise the level of public consciousness in recent years, even the most experienced backcountry traveler is occasionally remiss. Most visitors follow the signs: Pack out whatever you pack in. No matter how careful we are, however, it’s difficult not to lose an item or two when taking an extended journey. So the trick in this case is to minimize the chance of loss.

To do this, be careful what you pack in. Most trash can be eliminated from the start with organized meal planning. Repackage food in plastic bags instead of cans, bottles, or aluminum foil. Calculate food rations carefully to avoid leftovers. If you end up with leftovers, package it in plastic bags and either eat it later or pack it out.

Scattering food, especially large amounts such as a burned pot of rice or noodles, is inappropriate. These scraps are aesthetically unpleasing and can attract animals. Although scattering leftovers is unlikely to cause serious problems in remote places, it’s always best to pack out what you can’t (or won’t) eat. Burial is also ineffective, because animals smell the food and dig it up. Burning food, which is usually moist, requires an extremely hot fire. Often your good intentions will only
result in a half-charred mess that smothers the fire and leaves unburned food, charcoal, and a sloppy fire pit. Grains of rice and fuzz balls from your favorite pile jacket may not completely disrupt the local ecosystem, but litter is litter. After all, with enough time, even a Buick is biodegradable. Where do you draw the line? Challenge yourself to pack out everything possible that you take into the backcountry.

One exception to our recommendation to avoid scattering leftover solid food is fish viscera, which should be scattered widely or buried in a proper cathole, out of sight of and away from campsites, or packed out. Like moist food scraps, fish viscera will not burn adequately in a campfire unless it is exceptionally hot. At high elevations, don’t throw fish remains back into lakes and streams; the cool temperatures in mountain waters act like a refrigerator, preventing rapid decomposition. Viscera slowly rotting on the bottom of crystal-clear lakes and streams provide a lasting reminder of careless humanity. (See chapter 11 for an exception to this practice in bear country.)

Today, traveling light for many visitors also means doing without that recent invention of civilization, toilet paper. Even though a growing number of users are finding leaves, grass, rocks, pine cones, or snow satisfactory, others deem this too great a sacrifice. If you spend much time in popular backcountry areas, however, you’ll understand why many say toilet paper has no place in wild country. Discarded, uncovered toilet paper can linger, disgusting visitors who follow and creating possible health hazards.

If you use toilet paper, try to get by with a minimum amount and use nonperfumed kinds. As a general rule, don’t try to burn the used tissue, especially when forest conditions are ripe for a possible fire. Some backcountry areas prohibit burning toilet paper. The best option is to put the used paper in a plastic bag and either pack it out or burn it later in a hot campfire. If you do decide to burn toilet paper at the site, take all the proper precautions with the fire and make sure all toilet paper is consumed. At the barest minimum, toilet paper can be stirred in and well buried in the cathole with the feces, but remember, in dry or cold environments, buried toilet paper lasts for a long time.

Tampons require extra care. They are often difficult to burn, and campfires are seldom hot enough for complete combustion. For this reason, bag them and carry them out with your other trash. Pack them with crushed aspirin or a used tea bag to reduce odor. Under no circumstances should you leave them buried in latrines or catholes for animals to dig up. Additional precautions are necessary in bear country, where burying used tampons or sanitary napkins can be a safety hazard (see chapter 11).
Water That Remains

Water used for cooking and dishwashing is another unavoidable waste product. For years, NOLS advocated draining excess water from cooking or washing into the corner of either a fire pit or a nearby sump hole. Upon later investigation, however, we learned that the dissolved food residue attracted animals. In addition, if the campsite was used frequently, subsequent visitors often complained of flies drawn by lingering odors. Now we recommend widely scattering such wastewater at least two hundred feet from any water source and far from any campsites that are likely to be used again soon. An exception to this practice also occurs in bear country (see chapter 11). Finally, before discarding your cooking water or dishwater, always remove food scraps that can be packed out with your excess trash. This is easy to do if you pack along a strainer or screen. Simply pour the water through the screen, collect the food particles, and pack them out.

Another use of water in the backcountry is for cleaning. The big question when you are washing either dishes or yourself is whether you should use soap. Many who advocate using no soap cite the benefit of having one less item to carry, as well as freedom from concern about dysentery if soap residue is left on cooking utensils. Others, stressing its importance for both personal and group hygiene, can’t do without soap. A few advocate compromise—soapless dishwashing and personal bathing, but washing one’s hands with soap after relieving oneself.

From strictly an impact standpoint, the best solution is not to use soap in the backcountry. Even soap that is marketed as biodegradable may alter water’s delicate pH balance and seriously affect aquatic plant and animal life by introducing phosphates and other chemicals. If, however, you can’t (or won’t) give up soap, always use a brand that is phosphate free, and minimize the chance of soap entering a water source by keeping it well away from streams and lakes.

The best technique for bathing is to carry water at least two hundred feet from its source before lathering up and rinsing off. (Your cooking pots or water jugs are convenient water containers.) This allows your wastewater to filter through the soil and break down before returning to any nearby body of water.

If your clothes need washing, consider merely rinsing them, using no soap at all. Besides its polluting effect, soap is difficult to remove from clothing, especially without warm water, and residual soap can cause skin irritation. Choose a creek or stream with a substantial flow (not a small body of
water) in wind to rinse your laundry. Where water flows are more meager, rinse your clothes in water carried at least two hundred feet from the water source.

SUMMARY

Sanitation
In areas that are not equipped with toilet facilities, packing out feces is the most responsible way of dealing with human waste. For those who choose not to do this, either because of inconvenience or impracticality, proper disposal should accomplish three objectives:
1. Minimize the chance of water pollution.
2. Minimize the chance of anything or anyone finding the waste.
3. Maximize the rate of decomposition.

Catholes
- Catholes are the best option in areas that are regularly visited by people.
- Choose a site that is out of the way and more than two hundred feet from water, trails, and camps.
- Dig a hole six to eight inches deep and four to six inches in diameter. When you are done, stir in soil with a stick, cover with two inches of topsoil, and camouflage the surface.

Surface Disposal
- Surface disposal is only appropriate in remote, very lightly used areas with little soil.
- Make sure surface disposal is legal in the area.
- Choose a site that is remote and not likely to be visited by others. It must be more than two hundred feet from water and have a dry, open exposure.
- Scatter and smear the feces with a rock or stick to maximize exposure to sun and air.

Latrines
- Latrines are the least desirable option but may be appropriate where the number of disposal sites is severely limited, where a large group intends a long stay, or with inexperienced campers incapable of selecting proper sites for catholes.
- Dig a latrine wider than it is deep, but at least twelve inches in depth.
- After each use, cover feces with soil and compress them with a foot or a shovel to encourage decomposition.
- Fill in the latrine once it gets within four inches of the surface.

Toilet Paper
- Rocks, sticks, snow, and vegetation make good toilet paper substitutes. If you choose to use toilet paper, pack it in a plastic bag to carry out or to burn later in a hot campfire.

Trash
- Pack it in, pack it out.
- Repackage food in plastic bags before your trip to minimize trash in the backcountry.
- Plan food rations carefully to avoid leftovers.
- Pack out solid food scraps.

Wastewater
- Strain dishwater, and scatter liquid at least two hundred feet from any water source.
- Use soap far from streams and lakes to avoid contaminating water.
- Avoid spending more than a few days at any one campsite unless it is an established campsite or sacrifice area.
- Leave the area as you found it or better. Do not trench around tents, cut live branches, or pull up plants to make a pleasant campsite. If you do clear the sleeping area of sticks, pinecones, and the like, be sure to scatter these items back over the area before you leave.

DEALING WITH HUMAN WASTE

Disposing of human waste in the wilderness must be done with good judgment and common sense. Newcomers to the wilderness are often embarrassed and unsure of how to cope without a bathroom. It's a subject that most of us don't spend a lot of time talking about. However, failure to learn the proper techniques can not only damage the environment but also lead to gastrointestinal illnesses from improper hygiene (see Gastrointestinal Infections, page 316; Keeping Yourself Clean, page 78). One of the sources for the spread of Giardia in backcountry water is the improper disposal of human feces.

Know your ecosystem and any camping regulations for the area. The techniques described here are the general recommendations for subalpine temperate forests in three-season conditions (spring, summer, and fall). In other ecosystems, such as glaciers, deserts, or seacoasts, the procedures may be very different. (For details on human waste disposal in other ecosystems, see the Bibliography.)

URINE

Urine is "relatively" free of microorganisms (unless the individual has a kidney or urinary tract infection). As a result, urine can be considered "clean," but not sterile. The major issues with urine are the smell it leaves and the concentration of salts left behind when the water evaporates, which can attract animals.

- Location Urinate wherever possible, but at least 200 feet (61 meters) — about 70 steps for an adult — away from the trail and any water sources. Urinate on rocks or in areas with thick humus layers and drainage (decaying leaf piles, dirt piles). Try to avoid fragile vegetation, because the acidity of urine can affect plant growth. Avoid urinating on plants to prevent animals from defoliating or digging up the plants.

- Techniques Urinating outdoors is simpler for men than for women. In her book How to Shit in the Woods, Kathleen Meyer devotes a whole chapter to the subject. One technique for women is to sit on the edge of a rock or log with your feet propped up on another rock or log in front. This prevents the dreaded problem of peeing in your boots. Another technique is to use a plastic funnel to direct the urine stream. Funnels such as the Sani-Fem are made specifically for women. These can also be used with a pee bottle in a tent (handy in bad storms or cold weather).

FECES

Human feces can create a significant impact on the environment. They can contaminate water sources, spread disease, and affect other wilderness travelers, both visually and by smell. Your goal should be to prevent contamination of the environment by limiting contact between your feces and insects, animals, people, and water sources. The other goal is to maximize the ability for the feces to decompose naturally.

Fecal decomposition is affected by a number of factors — sunlight (warmth), dryness, and soil bacteria — so different ecosystems require different methods of disposal. In three-season, subalpine temperate forests, the best answer is to bury feces or to pack it out. Burying slows down the decomposition, but it alleviates the problem of visual impact and reduces the chances for contaminating water sources. (For more information on human waste disposal in other ecosystems, see the Bibliography.)

Remember that bacteria is likely to be on your hands afterward, even when you've used toilet paper. Wash your hands after going to the bathroom to protect yourself and other members of your group from gastrointestinal infections.

Locations

Find a site far enough from the trail, away from water sources, perhaps with a good view, and with abundant natural toilet paper materials. In some cases, it can involve some pretty complicated acrobatics to keep your balance and do your business.

- Outhouses When available, you should always use existing outhouses. They concentrate use to minimize impact.

- Catholes — small pit toilets dug for individual use — are often the best solution. The cathole means smaller, less concentrated waste disposal, usually ensuring more rapid decomposition.

- Latrines — larger pit toilets dug for group use — are best if you're camping with a large group, or if you are remaining in the same camp over a number of days. This is not generally recommended, since this higher concentration of feces will decompose very slowly.
- **Smearing**: Smearing is just what it sounds like. Deposit feces directly on the surface and smear it with a rock or stick. This spreads it out and maximizes contact with sun and wind to speed degradation. This presents a real Leave No Trace dilemma, however. Smearing should _only_ be done in areas with very few visitors, where the chance of someone else discovering it is small. Otherwise, you risk not only visible and smell impact on another group, but also contamination if your bacteria are still living. This technique is best in ecosystems such as deserts or glaciers, where smearing will cause feces to degrade quickly (two weeks in some settings) and where burying significantly increases the time needed for decomposing.

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**TRICKS OF THE TRAIL**

**How Long Does It Last?** You'd be surprised how long feces last in different environments. Research has also shown that buried feces can still contain live bacteria a year after burial. Feces left in glacial environments can remain there, unchanged, for years. This is one reason it is important to deposit feces well away from trails and campsites.

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**How to Dig a Cathole**

- Catholes should be _at least 200 feet_ (61 meters)—about 70 steps for an adult—away from streams, rivers, lakes, and marshy areas to allow human waste to decay and be filtered through the soil without polluting the water. You should be a significant distance from trails and campsites.
- Avoid digging a cathole in an obvious drainage area where water flow and erosion may unearth your deposit.
- Whenever possible, latrines or catholes should be dug in organic soil layers. Soil bacteria constitute major decomposing agents, so mix topsoil with feces before burial. In more sterile soils (sand or predominantly inorganic soil layers), subsurface moisture is often the critical factor, so feces should have a more shallow burial.
- Dig a hole 6 to 8 inches deep (15 to 20 centimeters) and 4 to 6 inches in diameter (10 to 15 centimeters). Bury the feces and cover the site with natural materials to disguise it.

Latrines are basically the same procedure, except you need to dig a deeper hole. Leave the pile of dirt next to the hole. After going to the bathroom, each person should cover the feces with a layer of dirt. Close up the latrine before it gets too full and scatter the extra dirt. Cover the site with natural materials to disguise it.

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**Packing Out Feces**

In some locations (such as on canyon river trips) you may need to (or be required to) pack out feces. If you are backpacking, this means preparing a "poop station" each time you go to the bathroom. Here are a couple of standard procedures:

- A group approach is to go to the bathroom into a container that can be tightly sealed, like a surplus ammo box. Line the box with two paper or plastic bags. After each dump, toss in some kitty litter or chlorine bleach to help absorb odors. It's best if you don't urinate into the container. Close the lid after each use. When the bag gets full, use latex gloves to tie up both bags. Place them in another clean bag, seal it, and pack it out.
- The individual "pooper-scooper" approach is where each person collects their own. Turning a bag inside out and using it as a "glove" will allow you to pick up feces as long as it has a relatively solid consistency. You can help this process by going to the bathroom into a cathole, adding dirt or sand to help solidify the mass, and then picking it up with your bag.

After your trip, you need to properly dispose of feces. It's illegal to dump human waste in landfills, so you can't just toss it into the trash. Instead, dispose of feces in a sanitary waste disposal unit, either an RV collection site (found at many campgrounds), an outhouse, or a toilet. Paper bags are biodegradable and can be handled by waste disposal units, while plastic bags are the suction units used to remove the waste. Don't put plastic bags in sanitary waste receptacles. If you prefer to use a plastic bag to store your poop, clean and disinfect the bag afterward (wearing plastic gloves) before disposing of it.

**TOILET PAPER**

The use of toilet paper is controversial in terms of Leave No Trace practice. You also need to consider hygiene practices (hand contamination may be more prevalent if you're using natural materials). It's not whether you use toilet paper, but what you do with it afterwards that has impact. If you use toilet paper, use biodegradable or recycled paper, avoid paper with dyes and perfumes, and never leave toilet paper out on the ground. Here are some disposal techniques:

- **Pack It Out**: Place your toilet paper in a doubled plastic bag or doubled Ziploc bag that can be tightly sealed. Keep it in your pack away from...
food. Sprinkle some chlorine bleach in the bag to help kill bacteria and odor. When you get back to "civilization," dump the contents into an outhouse, portable toilet, RV receptacle, or other site. These sites cannot handle the plastic bag or container, so that must be disposed of separately. Take the container home, rinse it with water over your toilet, and rinse it with a bleach solution before disposing of it in regular trash.

- **Burrying** If you bury your toilet paper, it will decompose more quickly if it is wet. Take along your water bottle and wet the paper down or urinate on it before you bury it.
- **Burning** Burning toilet paper is generally not recommended. Too many forest fires have been caused by sparks or smoldering paper. If you must burn toilet paper, burn it in a large metal can rather than on the ground. Always have a full water bottle with you to put out any flames.

**TRICKS OF THE TRAIL**

**Use Care When Burning Toilet Paper.** A number of years ago I was on a canoeing trip with friends on the Green River in Utah. As we approached the take-out at Spanish Bottom, the confluence of the Green and the Colorado River, we began to smell smoke. Soon clouds of thick, gray smoke were pouring up the canyon. We were concerned about the fire flashing up-canyon toward us, so we paddled back upstream to camp. The next day we paddled down to find both sides of the canyon completely blackened by fire. A ten-year-old from a camp had been burning his toilet paper when some hot ashes blew over into the dry grass and set it on fire. The fire spread quickly, with the breeze, and sparks jumped across the river burning the other side of the canyon as well. Seeing the charred remains of cottonwood trees that had provided shade for over 100 years, and dead deer and other animals trapped by the fire, was a solemn reminder of the danger of burning toilet paper.

**NATURAL MATERIALS**

Some people prefer natural materials to toilet paper, because they can be used without damaging the environment. There are numerous choices, including leaves, pinecones, rocks, sticks, and snowballs. Natural materials should be disposed of with the feces (which in most cases means burying). If you are going to pack the feces out anyway, you might as well use toilet paper and pack it out as well. If you are going to use plants or other natural substances instead of toilet paper, you should observe these guidelines:

- Use smooth sticks, rounded rocks, or snow.
- Use dead plants or leaves before live ones.
- Know your plants and avoid using toxic plants like poison ivy, poison oak, stinging nettles, or other plants with toxins or barbs.

- Avoid plants with sharp edges, like reeds and bamboo, which can cause lacerations.
- Don't pick rare species or wildflowers.
- Gather plants or other materials from several locations before you start to go to the bathroom. That way you won't deplete a particular plant of too many leaves. Remove leaves only; don't uproot the entire plant.

**THER TYPES OF WASTE**

**MEDICAL WASTE.**

Any medical equipment that has been contaminated with blood or body fluids is considered medical waste and must be disposed of properly. These items should be placed in a plastic bag marked "medical waste." Sprinkle some chlorine bleach into the bag to kill any microorganisms. Technically, this waste should not be disposed of with regular trash. If possible, place it in an appropriate medical waste container when you return from your trip. Be especially aware of any sharp objects (needles, scalpels) that might be in our medical waste, since getting a needle stick can transmit microorganisms. These should be placed in some rigid container or wrapped in cardboard and then taped to prevent injury to anyone handling the waste. (See also Women's Hygiene Issues, page 82.)

**GARBAGE**

Garbage is organic food waste from cooking, including such things as fruit and vegetable peelings, leftover food, and fish viscera. Here are some guidelines for dealing with garbage:

- Minimize garbage by repacking food before your trip.
- Avoid leftover food by carefully planning your meals.
- When leftovers do occur, they should be carried out in plastic bags.
- Don't try to burn food unless you have a hot fire and can completely incinerate the food. Partial burning leaves a charred food mess in the fire site.