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Fire

Fire building is a step-by-step process with preparation being the key to success. Sources for reliable tinder that will catch readily from a small flame are bird and mouse nests, various tree barks, dead grasses, pocket lint, dry leaves or pre-packaged tinder. Once you have a good tinder bundle, gather progressively larger wood and have this ready before you light the tinder. It may be necessary to build a makeshift fire shelter from large leaves such as palm or fern fronds, dead branches, or using the underside of a large log to protect your startup fire from heavy rains. When gathering firewood, always search out standing dead wood since it sheds more water than dead wood lying on the ground. The middle portions of standing dead trees will be the driest part. You can also chop or break apart dead wood lying on the ground to extract the drier center portions. Once a fire is self-sustaining with a good coal bed, wet and green wood will burn. Until your fire reaches this point, keep all damp wood standing around, or in close proximity to the fire to help the drying process. For an initial flame, hold a flint striker just above the tinder and rip the Ferro rod backwards (away from the tinder) along the striking edge. With this method, you will avoid hitting the tinder and also keep the sparks directed into the tinder. Once you have a flame, place this in your tinder bundle or place smaller, dry sticks over the top and then build the fire progressively bigger. In a worst-case scenario, you can also use various items from a first-aid kit to start a fire. Insect repellent, alcohol prep pads, many ointments and some sipping whiskey are highly flammable. Scraping a small pile of magnesium from your fire-starting device into your tinder bundle will light damp tinder. You can also search for "fatwood" found in tree stumps and the heart of dead evergreen trees. Some evergreens have a highly flammable concentration of sap in the stump and heart. Fatwood will have a distinct smell of turpentine when broken apart. Pine trees are the most recognizable for producing fatwood stumps, but flammable resin species of trees exist all over the world. Fuzz out a stick of fatwood and you can light it with your striker. Magnifying glasses such as a Fresnel lens will also light dry tinder under the right conditions. It is also possible to use certain camera or binocular lenses for this process, but it depends on the lens size and power.

Shelter

If you have a poncho, parachute, space blanket or any other large piece of material, you can build a quick lean-to shelter. Simply attach a length of cord to each corner of the material, tie two of the corners between two trees or cut sapling poles, and the bottom two corners to the ground (to stakes or saplings) to form a lean-to shelter. Make this shelter tall enough to stand under. The shelter should be positioned so the rain that runs off your shelter will move away from the shelter and not under it. Once this is set up, build a small fire underneath the shelter towards the high end. This will give you a quick shelter from cold rain and also protect your fire from heavy rain. Be careful not to build your fire too high since it will burn your shelter roof. If you're setting up permanent shelter to sleep under, construct a similar lean-to but closer to the ground. The fire should be built in front of the shelter in the open air. For this type of fire, you need a long coal bed to put more heat over the length of your body. You can also reflect the fire's heat towards your sleeping quarters by stacking larger logs on top of each other to build a wall behind the fire. Drive two sticks in the ground behind the fire to stack the logs against. In damp or cooler areas, build a "swamp bed" underneath your roof. Swamp beds are raised sleeping platforms fashioned from sticks or saplings. They're quick to build by using four forked sticks driven in the ground as the corner support posts. Two longer sticks are then placed in the forks, parallel to the ground, and the top is then floored with smaller sticks and vegetation. The best sleeping platform is about 30 inches wide and 2 feet off the ground. This system keeps the ground from sucking body heat away from you and also helps to keep crawling insects from bothering you in the night.

If you have no poncho or other similar material, improvised shelter can be built beside large fallen trees. Placing sticks over the tree in lean-to fashion and covering with smaller sticks and vegetation will keep the elements at bay. Pad the ground with leaves or soft brush to make an insulated mattress. If available, large leaves such as Banana and Bird of Paradise can be fashioned into a leak-proof shingle roof by starting at the bottom of your shelter and lapping more leaves on top as you go up. Lean-to shelters built from debris or plants should have a steeper angle than a poncho lean-to in order to make them more waterproof. Be careful when using dead logs for one side of your shelter. Just like you, a lot of animals and other creatures seek shelter in these same locations. Always position any shelter's opening away from incoming weather or cold wind.

Water

Water is one of the most necessary survival requirements. You should always be on the lookout for water sources. In hot weather, drink as much water as you can and conserve your body fluids by staying in the shade during the hottest part of the day, keeping your clothes on so sweat doesn't evaporate quickly, and moving only when necessary. Always obtain the cleanest water possible, but in a survival situation any fresh water is better than no water at all. A condom, plastic bag, waterproof hat, poncho, or other improvised container can be used to gather and carry water. In highly suspect water, use water purification tablets or boil to purify. If water is not readily available from a river, lake or other source, remember that animal trails typically lead to water, birds typically fly towards water in the evening, and anywhere there is green vegetation or clusters of trees, there is water close to the earth's surface.

Many trees and vines are capable of producing water. In tropical areas, most of these will be large trees with exposed root systems and will produce over a quart of water from a 4-inch diameter root 36 inches long. When cutting a section of root for its water, always make the first cut closest to the tree to keep the water from being sucked up into the system. If you have chosen the wrong vine or tree, water will not be free-flowing and the dripping sap will have an extremely bitter taste and/or milky appearance - do not drink this since it can be poisonous. If you're lucky enough to be in an area abundant with bamboo, then you take water directly from the sections by cutting a hole at the base of the chamber and letting the water flow out. Another resourceful place for finding water is inside the leaf systems of plants. Rainwater will gather in the bowl-like shapes of many tropical plants. Air plants such as orchids always have some amount of water collected within. If it's raining, fill your water bag by making a funnel from large leaves or tree bark.

Although we do not recommend them, you can make transpiration still if you have a clear plastic bag, green leaves or other vegetation, and a small rock or weight. Fill the bag about half full with the vegetation and place the rock inside to make a low point in the bag. Close the bag and tie off securely. Place the bag in direct sunlight and the vegetation will soon give up its moisture in the form of condensation. As the moisture condenses on the bag, it will run to the low area where a small hole can be punctured to drain the water off. Be sure to reseal the hole with a cordage tie so water can begin collecting again. As the water production slows, it will be necessary to change out the vegetation. Water from a transpiration still is safe to drink regardless of the plants used, since this is a distillation process. Be warned, these stills produce very little water and will require many of them to support a human's daily hydration requirement. If you only have access to salt water, soaking rags or vegetation in the salt water, then extracting the condensation through the still, produces distilled water, thus making it drinkable. Digging behind the natural sand dunes on a salt-water beach will usually produce drinkable water. Other tricks to finding water are looking for tree crotches or crevices in rocks that may contain water. Many plant roots can be mashed to release their water content. The Australian Aborigines use a method of tying tufts of grass to their feet and walking through dew covered ground, then squeezing the water into their mouths.

Compass Navigation

To walk a bearing, place the compass in your hand and allow the dial to settle, sight along the direction you want to travel (N,S,E,W). Travel this bearing by sighting an object along your desired path of travel (tree, rock, bushes, lake, etc.) and walk to it. Once you reach the object, find another on the same bearing and move to it. This process will keep you walking a straight bearing. If there is no object and you are traveling with a companion, have them become your target by walking a ways in front of you and moving until they line up with your bearing. Walk to them and repeat the process. Many times one bearing may not allow you to reach your destination, due to obstacles such as large lakes or sheer cliffs. If you must change bearings for easier mobility, then be sure to note every change for backtracking purposes. We also suggest pace counting to be used in conjunction with map and compass. If you don't have Ranger pace counting beads, use small pebbles or broken sticks. Place a handful in your right trouser pocket and every 65 full paces (one pace = every time your left foot hits the ground) move a pebble from the right pocket to the left. To know how far you have traveled, count the pebbles in the left pocket. Each pebble will represent roughly 100 meters for an average adult on level terrain. If you lose your compass or it gets broken, you can still find your cardinal directions by using the sun. The simplest method is called the Shadow Stick. This works by driving a stick into the ground in a sunny area. The top of the stick should be at least 12 inches above the ground. The sun will cast a shadow of the stick on the ground. At the tip of that shadow, place a marker on the ground, such as a small stone. The rotation of the earth will cause the shadow to slowly change positions. Wait about 30 minutes and place another marker at the tip of the moved shadow. Draw a line between your two marks. Toe the line with your left foot closest to the first marked position. You are now facing north. You can use the compass rose below or draw one on the ground to get other degrees or cardinal points relative to north. This system works in both the northern and southern hemispheres. The only exception is, it doesn't work as well once you go more than 20 degrees from the Equator, since the sun is lower on the horizon, thus making it more difficult to pinpoint the long shadows and East/West movement of the sun.

Signaling

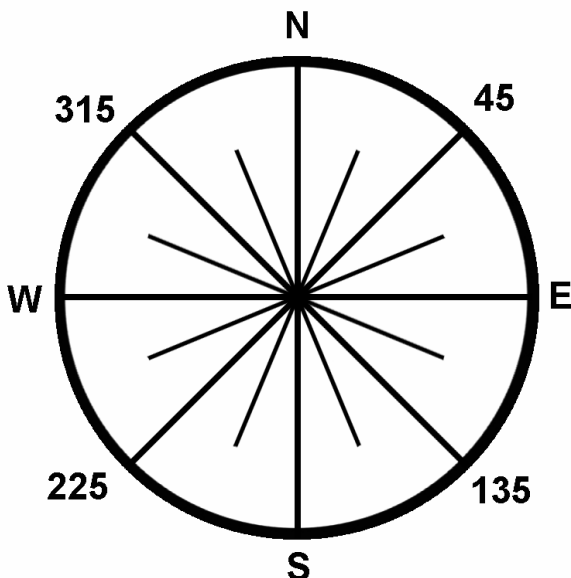
For daytime signaling, a signal mirror or other reflective device makes the best signal. If you do not have a mirror with an aiming screen, then hold the reflective device close to your dominant eye with one hand, and extend your opposing hand in front of the mirror, making a V "peace sign." Place the aircraft or other target inside your V, then move the signaling device until the sun flashes across the fingers making the V – you have just flashed your target. Even if you don't hear or see an aircraft, flash the horizon every 30 minutes, since search aircraft may be able to see the signal flash even though you cannot see them. If you see an aircraft, flash it immediately but do not hold the signal steady; instead flash it back and forth. The reason for this is all pilots see numerous reflective devices when flying, and unless these objects are flashing they do not raise a concern. Once you receive a positive signal from the aircraft that you have been seen, quit signaling so it does not confuse the situation. Signal mirrors can also have some effectiveness on hazy and cloudy days. The mirror can also be used as a first aid device to remove splinters from hard to see locations or tend to other wounds. The small LED light can be used at night to signal the international distress Morse code of SOS (three shorts, three longs, three shorts.) if the rescue aircraft is close enough.

If you're stuck in the wilderness with no signaling device, fires can be used but you must have them in a constant state of readiness. All signal fires need to be built in open areas so they are more visible from the air. In dense forest, the suggested clearing is a minimum of 50 square meters to allow a wider angle of view from aircraft. Gather an abundance of fire-making materials, and then build three small fires equally spaced in a straight line or a triangle. If possible, separate the fires a minimum of 50 feet apart but be sure you maintain equal spacing. Keep enough wood to maintain decent sized fires at all times. Also, gather green vegetation such as grasses, treetops with leaves, or other broad leaf plant material. If you hear aircraft at night, build all three fires up quickly with small, dry wood or dead leaves to produce as much light and flame as possible. If the plane is passing by in daylight, then cover the fires with green vegetation to produce heavy smoke.

Make ground signals from logs, ponchos, contrasting vegetation or anything else that is visible from the air. Use the following international codes to communicate your needs: A straight line means you need immediate evacuation or medical assistance. An F indicates a need for food or water. X means you are unable to move. An arrow communicates your direction of travel, if you plan on moving from that location. A triangle represents a safe landing zone for rescue aircraft. LL means everything is ok and no assistance is needed. See the bottom of this page for signaling examples.

Self Rescue

In most all cases, it is best to stay put instead of attempting self-rescue. However, if your circumstances dictate that you must move to stay safe, then be sure to leave a note or signal as to the direction you are traveling (unless you are in evade mode). In heavy forest, it is very easy to become disoriented once you go outside the visual range of a known landmark. If you decide to self-rescue and walk out, take a quick compass reading of the direction you are traveling and also make a note of the direction the trail, road, river or other distinct landmark is in relation to your travels. If you become disoriented, you can easily walk a compass bearing that intersects the landmark. Another technique is hacking a back trail as you move through the forest. Using a knife, hack a visible sign every so often on the backside of trees. If you need to return, then the hack sign will be visible. Always hack on the same side of your path (either right or left). You can also mark a path by breaking over small plants so they will be visible on your return trip. If you use this technique, always break the plant so the underside of the leaf will be visible on your return. The bottom side of a leaf will contrast better against the forest than the topside and will be notably out of place when you're looking for a sign. If you are close to running water then, in most cases, following water downstream will eventually lead to civilization.



Ground To Air Signals

I	II	X	F	↑
Require Doctor Serious Injuries	Require Medical Supplies	Unable To Proceed	Require Food And Water	Am Traveling In This Direction

For More Survival Info: www.jungletraining.com