



How to Outlive an EMP the Early Pioneer Way

by Claude Davis



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Day 1 – EMERGENCY PROCEDURE

Your first job is to get back home quickly and safely. You and your family should have all previously established this as the number one priority. Ensure that everyone is accounted for.

Immediately convert any cash into useful assets like food, water, medicines, and supplies like clothing and fuel. Your money will become worthless very quickly, so use it up at nearby shops.

Contact neighbors, establish regular meeting times (at sunset for example), and take an inventory of skills and supplies. Brief everyone on security, from travelling in pairs to avoiding walks at night. Establish regular patrols and danger signals if attacked. Use a hand-cranked radio to check weather reports and news broadcasts.

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Begin to ration food and water, and consider how to deal with human waste, dirty water, and trash. If necessary, dig a pit at least 100 yards from the nearest food or water store and a minimum of one foot in depth. Trash should be buried or burned on a daily schedule and moved away from your home to keep rats away.

Secure your home before nightfall, checking the perimeter for breaches and ensuring that doors and windows are locked. Empty tin cans on a string are a simple early warning system for intruders, and broken glass can act as a barrier to entry.

Immediately secure all the water in your home, filling bathtubs and any other container with the remaining water via the municipal supply, within pipes, and from storage and rainwater tanks. To flush pipes, turn off the water at the shutoff valve, put a container under the lowest faucet in the house, and then open the lowest faucet and then a second faucet higher up.

Day 2 – MAKING PEMMICAN

Your supplies of fresh meat will spoil quickly without refrigeration, but if turned into pemmican, it can last for years if stored away from moisture, heat, and direct sunlight.

You will need equal portions of dried red meat and fat, preferably fat from red meat like beef tallow. You can also add dried berries to the mixture but no more than 5% of the total.

Firstly, you will need to render the fat to boil off the water. Cut it up into small, half-inch chunks. Put the fat in a pot so it is about $\frac{3}{4}$ full, and put it on an open fire or a gas stove if you have one. Leave the lid off, and place a thermometer in the pot.

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Boil the fat for about an hour, being careful not to let the temperature exceed 250°F. Stir continually until the boiling stops and only small bubbles rise from the liquid fat. Next, strain the fat through a sieve.

Secondly, dry out your meat by shredding it then cooking it over low heat for about 15 hours, until it is crispy. You will need three times the amount of fresh meat as you need dried meat as it reduces to about 1/3 of its weight during drying.

Finally, mix equal quantities of the dried meat and rendered fat together by heating up the rendered fat until it liquefies (keeping the temperature below 150°F), and then stir in the meat until you have a mixture like brownies.

To store the pemmican, press it into Ziploc bags and seal it up, making sure there are no air bubbles remaining. Protect the bags from light and moisture by wrapping them in aluminum.

Day 3 – FINDING & PRESERVING WATER

You will die within 72 hours without adequate water. You will require one gallon per person per day of clean water.

To preserve your water, add a few drops of unscented household bleach or iodine, or alternatively, add a few items of untarnished silver jewelry. To prevent evaporation, cover bathtubs, and ensure container lids are tightly closed. Wash out containers thoroughly before use.

Store water away from direct sunlight in a cool, dark room. You should mark the date each supply was laid down, and check for leaks and contamination regularly. You should put the date you stored each container on a label. Water does not last indefinitely unless it is treated with chemicals or oxygenated. You will either see growth

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inside contaminated containers or the water will have a noticeably unpleasant smell. Discard anything you are dubious about; water can carry a multitude of diseases.

You can collect rainwater using upturned umbrellas over buckets or by simply leaving containers out during a downpour. Nearby reservoirs and abandoned buildings may also have stored water.

An instant test for cleanliness is that water should have no taste, color, or smell and should also be cool. Avoid warm, brackish, foul-tasting water and water that smells.

It is wise to purify any water you find or accumulate, even if it appears okay. Boiling, distilling, or adding diluted hydrogen peroxide or water purification tablets will prevent illnesses.

Day 4 – BUILDING A SMOKEHOUSE

Smoking your food can keep meat, fish, cheese, and vegetables fresh for months.

First, lay down the base of the smokehouse using a layer of cinder blocks with their open ends pointing upright. Size the smokehouse according to the blocks, wood, and bricks you have on hand—even a few square feet is workable.

Second, add the frame using wooden strips or beams to construct the vertical and horizontal edges. Bolt this in place over the base, and then use wooden planks to make the walls and roof. Cedar is the best wood as its natural oils will help preserve food.

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Third, build a firebox from bricks and mortar. It is simply a box with one side open to add fuel. It should be smaller than the base of the smokehouse. You can either build it in the middle of the base and leave a hole open in the top of it for smoke to trickle out of or build it next to the smokehouse and use a pipe to carry smoke from the top of the firebox to the smokehouse.

By placing hooks on the ceiling, you can hang your food to smoke. Make sure there is enough space between things for the smoke to circulate; don't pack it too tight.

To start smoking, build a fire in the firebox using non-resinous, dry wood. The best choices are hickory, maple, pecan, oak, and mesquite. The wood must not be green or producing sap or resin, as this will ruin the food. Smoke your food for up to 24 hours. Remember, you need to cook smoked meat before eating it.

Day 5 – INSTALLING A WOOD-BURNING STOVE

For most people, firewood is the only easily available heat source, so a properly installed wood-burning stove is essential.

Your stove can be a ready-made unit, or you can improvise one with a large metal box into which you can add some bricks to even out the temperature inside.

Position your stove in the middle of the room, if possible, and place it on a fireproof surface, such as bricks, ceramic tiles, or gravel. Make sure the surface extends a couple of feet farther than the stove to stop hot sparks.

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To avoid doing major building work, just run the chimney of the stove out of a window. Remove the glass pane, and replace it with aluminum flashing or a piece of wood; then cut a hole for the chimney pipe. Make sure you secure the chimney and your improvised window to prevent wind damage.

The most important factor in running your chimney is making sure there is an upward gradient of at least $\frac{1}{4}$ inch per foot so that the smoke is encouraged to rise.

For heating, hardwoods go further than softwoods. Your wood should be cut so it is a couple of inches shorter than the length of your stove.

To make a quick heater for beds and other rooms, place bricks on top of the stove until they have stored plenty of heat. Then wrap them in towels to use elsewhere. They will stay warm for hours.

Day 6 – FELLING TREES FOR FIREWOOD

Your goal is to source, cut down, and chop up a sustainable fuel source from nearby trees and forests.

You will need a good ax or wood saw ready. Beginning close to your home, fan outwards. Look for standing dead trees, which, unlike live trees, contain good, dry firewood and need less curing. As you move along, gather up fallen trees, logs, and even small branches.

When you have selected a suitable tree, cut a notch in the base of the tree facing out in the direction you want the tree to fall. Use an axe or saw, and take a forty-five degree angled chunk out of the trunk. Next, cut from the other side of the notch, horizontally

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through the rear of the trunk, to join up the two cuts. Stay behind the tree so it falls forward, away from you.

Next, trim away the branches and limbs from the fallen free. These can be chopped into kindling. Once the trunk is free of debris and easy to handle, you can begin cutting the trunk into sections so it is easier to transport.

Chop the wood into firewood-sized pieces close to your home. Aim for logs sized about the length of your forearm, and don't forget to collect any shavings and debris as this is useful for starting fires.

You need to dry out your firewood thoroughly before using it. At a minimum, cover it with a tarp or plastic sheeting, but consider bringing some inside your home so it dries faster.

Day 7 – MAKING SOAP

For washing clothes, bathing, and cleaning up, you need to secure an easily renewable supply of soap.

Pioneer soap is a mixture of a fatty acid and an alkali with water. You can use any kind of fat, like lard or vegetable oil, and you will use lye as your alkali.

To make the lye, put wood ashes into a pillowcase, and put this into a bucket. Pour on a gallon of boiling water, and work the pillowcase with a long wooden spoon, like making a giant cup of tea.

Repeat this for an hour or two, and then test the lye by throwing a chicken feather into the bucket. If it dissolves, the lye is the correct strength. Take the resulting brown mixture, and boil off the water, or let it evaporate away slowly.

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Your fat will need to be rendered. You do this by simply boiling off the water in a pan. You will need a total of about 20 ounces of lye, 2 $\frac{1}{2}$ pints of water, and about 6 pounds of fat. This will give you enough soap mix for about 36 bars—around one month's supply.

Finally, you need to mix your fat and lye together in a pot. Boil this for six to eight hours, until you find that the mixture is a big, frothy pile. When this cools, it will be a soft, brown liquid soap.

To make hard soap, just add a bit of salt at the end of the boiling process, and pour the liquid into a mold. A cake of soap will form when this cools.

Day 8 – FORAGING FOR WILD FOOD

A free supply of edible roots, nuts, weeds, herbs, and fungi is available in the wild areas and gardens around you.

Before you set out foraging, you must make sure you know the locally edible plants. If you haven't already got a chart or a book, source one from a library or a neighbor. The only way to be safe is to know how to identify safe plants and avoid poisonous varieties. This is especially important with fungi.

You can find wild food everywhere, from your garden to national forest land. While foraging is harder in winter, thanks to mushrooms, you can gather it year round.

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Plants absorb pollution, so avoid areas close to major roads and anywhere within 100 feet of a source of pollution—like a cesspit in a garden for example. You should also avoid spots where animals have left droppings and close to large buildings, car parks, and hospitals.

A sharp knife is usually all you need to forage. If you want to return to forage from the same group of plants, take no more than 1/3 of each plant.

Test your foraged food before eating it in quantity. Try a small piece first, and rub it on your skin. An allergic reaction, such as a rash or swelling, indicates it isn't safe. Next, try eating a small piece, and wait a few hours. If you haven't suffered an upset stomach, the plant is probably safe.

Immediately after you return from foraging, either use what you have found or take steps to keep it fresh.

Day 9 – EMERGENCY LIGHTING & CANDLES

Unless you're set up for off-grid living, lighting requires candles, and these can be quickly improvised from household items.

An orange can be sliced in half, and after you remove the flesh and seeds, you can add a little cooking oil or olive oil as fuel. Push a wick made of string into the orange, and you will have a sweet-smelling candle.

You can also do this with a piece of butter or a can of tuna; you will need to bore a hole in the top for the wick. In fact, to make a candle, all you need is some form of fuel like oil or wax and a wick for the flame.

Children's crayons make an excellent self-contained candle as the paper around them acts like a wick.

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You can bundle them together to make a longer lasting or a more powerful candle.

Candles can also be used to build an emergency heater. Place a candle in a tray of some kind, and cover it with a small flower pot, with the handle directly under the water hole in the bottom of the pot.

The lit candle will gently warm up the pot, drawing air through the hole, and the ceramic pot will then radiate heat and retain it even when the candle is gone. To get even more heat, first cover the candle with a second, larger pot.

As you will be using open fires, candles, and other naked flames constantly, it is wise to have buckets of water or sand nearby in every room that is a fire risk. Remember that municipal water won't be available down a hose to put out flames.

Day 10 – SETTING ANIMAL TRAPS

By putting traps to work while you're busy with other survival tasks, you can save a lot of time and effort and get a steady supply of fresh protein and other animal products.

The simplest form of trap is a box propped up with a stick. Find a sturdy box the right size for your quarry. For a raccoon, for example, you'd need a box three feet long and one foot wide. Place the box in an area you believe has animal traffic, near a watering hole for instance.

You should prop the front side of the box up using a stick and place bait inside the box, close to the sides. The idea is that the animal will enter the trap to find the food. While eating or simply moving around, he

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will bump against the box, pulling it off the stick propping it up. He will then be trapped inside the box.

Alternatively, you can build a similar system but use a large flat slab of stone. This is called a dead fall trap, because the heavy stone will kill the animal and leave the carcass pinned for later collection.

You can also dig deep pits, add some sharp spikes hewn from branches at the bottom, and then add a layer of foliage over the top as camouflage. Larger animals may walk unwittingly over the thin layer of foliage and fall to their deaths on the spikes below.

Once you have set traps, check regularly to see what you have caught, and reset them if necessary. Don't leave too long between visits, or other animals may steal your catches.

Day 11 – BARTERING HARD ASSETS

With cash valueless, your surplus survival assets can become priceless. Stocks of fuel, food, medicines, wood, building materials, and other useful items can be traded for the things you lack.

Bartering is simple. You exchange goods and services with someone else. There is no cash involved, so the skill comes in deciding what value you put on the stuff being traded. While it's about downplaying what you want and overplaying what you have to trade, remember that in the primitive communities common post EMP, fairness is the best long-term survival strategy.

Remember that items you may not have thought useful yourself may have a very high value for

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others. For instance, old rusted tools may not be valuable to you if you have newer ones, but to someone with nothing, they could be priceless.

It's helpful to have some idea of the other offers you could secure by asking around. Don't take the first trade you're offered; look to make the most of every opportunity by getting a range of possible prices/exchange values. Don't be afraid to walk away from a deal if you think you can do better.

Trading needs heightened security as you could be the target for robbers much the same as if you were exchanging large sums of cash. It is wise to trade within a larger group and also wise to keep records of your trades in case of a later dispute. You should work out how you will transport goods to and from the exchange site before you set out.

Day 12 – CANNING, SALTING & PRESERVING

Salting is the easiest way to keep food fresh for long periods without needing heat or equipment to do the job. It's an ancient preservation technique.

To cure meat or fish with ordinary salt, cut it into slices, and cover it with a mixture of salt and a little brown sugar, honey, or maple syrup. Pack the slices tightly together in an airtight jar, packing all the way up to the rim.

You can also use brine—water mixed with salt—to pickle things like cucumbers, eggs, or chunks of fish and chicken. Mix up a strong brine solution, roughly two tablespoons of salt per quart of water. Next, cut up the food you want to pickle into small chunks, and add it to the solution.

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Pickled food is best stored in clean jars with tight lids to keep out air. Sterilize the jars before pouring in the solution by swilling them out with boiling water or wiping the insides with a little bleach and a rag then rinsing. Find a cold place, perhaps in a basement, to store the pickled and cured foods. After about a month, they should be fully preserved.

Potatoes just need to be stored with straw to preserve them for many months. Line a wooden box with straw, and then fill it about a foot in depth with potatoes. Add another thick layer of straw, and then add more potatoes until the box is full. Cover the box with a strong, rat-proof lid, and store the box.

When cooking with salted foods, test a small piece to see if the salt is overpoweringly strong. If it is, simply soak the food in clean water overnight, and then rinse to reduce the salt levels.

Day 13 – COOKING OVER AN OPEN FIRE

The lack of fuel and electricity and the difficulty of using even off-grid technology to produce enough heat for cooking means you'll be using an open fire to cook on a daily basis.

Building an open fire is easy, whether you're using logs and kindling wood or coal/charcoal and balled up newspaper. Make loose layers in a pyramid shape, and don't pack things too tightly so that oxygen can circulate as it burns.

If you are cooking or heating inside, especially when burning coal, you must let the smoke escape or you run the risk of carbon monoxide poisoning. At a minimum, leave the window open, and waft the smoke out.

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To conserve matches and fire sources, get used to using a piece of flint, perhaps from a roof or nearby rock fall, and a piece of steel. Striking them together should cause a spark. If conditions are poor, you can also use a little kerosene, alcohol, or gasoline to get the fire started. You can also use an aerosol spray, a little like a flame thrower.

Keep your cooking equipment in working condition. Never leave an empty pan on an open fire, and never put cold water into a red-hot pan. Check pans regularly for rust, and scrub it off.

An open fire can be used in several ways. Simply put a pot on top, or use a long wooden stick as a spit to roast meat above the flames, or even hang up chicken and other meats using damp string. You can create an oven by using two pots, one inside the other, with a little water in the larger pot to even out the heat.

Day 14 – SOURCING REMEDIES & FIRST AID

Pioneers knew how to turn simple kitchen staples, herbs, and natural ingredients into essential first aid supplies.

Many items are effective just as they are. Vinegar is good for cleaning wounds as is salt, although both will sting. Milk or tonic water deals with acid reflux or an upset stomach, and alcohol, especially white-colored liquor, is good for disinfecting, pain relief, and sterilizing things like tweezers or blades when removing thorns.

Pioneers were also good at making simple medicines. Make a salve for burns and insect stings by mixing one part honey, two parts linseed oil, and an egg yolk.

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For a quick cough syrup, mix equal quantities of lemon juice and glycerin, and gargle the resulting mixture slowly. You can add honey to thicken it up and to add to its antibacterial properties.

If you need to deal with injuries like sprains and swellings, you can make an effective poultice from equal parts lard and salt and rub this into the affected area. This reduces swellings. You can also simply use a towel soaked in cold water as a compressor over the forehead and eyes to treat headaches.

Many common vegetables have great medicinal properties. Onions and garlic are good at battling bacteria, and ginger is a warming root that can be made into tea to ward off colds. You can also make tea with chamomile, which is a calming, relaxing way to deal with stress, or with lemon slices to clean the throat of mucus.

Day 15 – PLANTING A VEGETABLE GARDEN

Harvesting simple crops turns a survival situation into more of a long-term lifestyle, and once planted, you will only need to check water levels, so a vegetable garden is a low-maintenance source of continual food.

First, find a suitable spot. Ideally, choose a plot that has nice, moist soil and that gets plenty of sun while being protected from strong winds by trees or buildings. Clear the ground of any debris, and turn the soil over a few times with a garden fork.

Choose the right plants, preferably those that are hardy and are considered easy to grow. Make sure you plant your crops at the right time. If you can find

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seeds, that is the easiest way to plant, but it is also possible to grow from cuttings.

Beans – Beans prefer warm weather and should be planted in the early summer. Beans are full of fiber.

Carrots – Carrots prefer cooler weather and should be grown in the fall, winter, and early spring. Carrots have plenty of beta carotene and vitamin A and can be stored for a long time.

Lettuce – Plant two weeks before last frost as well as in the fall six to eight weeks before the first frost date. Lettuce grows fast and can be cropped quickly.

Cucumber – Cucumbers prefer warm weather. They can be continually picked, and this actually increases their overall yield.

If you can, protect your crops with netting to prevent slugs and pests from devouring them.

Day 16 – CATCHING FISH & CRUSTACEANS

Seafood is nutritious, healthy, and often easy to find in and around rivers, lakes, and the seashore.

A fishing line is easily improvised with a safety pin or paperclip hook and some strong plastic line, even string or rope in a pinch. It's important to try different kinds of bait until you find something that works. Experiment with tiny pieces of meat, worms, colored feathers, and cubes of bread.

You also need to add a float—a small piece of polystyrene or a small, sealed, empty plastic bottle. This should go a few feet up from your hook, and it will tell you when you have a bite as it will bob up and down as the fish struggles on the hook. You

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should also take along a cooler to keep your fish fresh.

Choosing the right place to fish is the most important part of the equation. Avoid stagnant pools and areas with very low water levels. You should look for good currents and clean water. However, there are some places where fish congregate that can be useful, like marinas. You could also try tying a net across a small stream to trap fish as they swim past.

Crustaceans like limpets and mussels can be found attached to rocks that are either right on the shore or where waves are breaking a little farther up. Take a flat-head screwdriver and some plastic containers or buckets, and lever them off the rocks. A little salt water added to the bucket will keep them fresh while you work. Shellfish should be eaten immediately as they can carry dangerous toxins if they go off, which can happen in a matter of hours.

Day 17 – LEVERAGING THE COMMUNITY

Perhaps the only freely available asset post EMP is time, and by leveraging the skills and labor force in your community, you can tackle larger projects and increase your survival chances collectively.

Your community could contain doctors, mechanics, fishermen, people with farming experience, and fellow survivalists. Some people might have specialized equipment for repairs, and others may have stockpiles of building materials. The key is exchanging resources and putting things where they can do the most good.

Start with a neighborhood watch, organizing regular patrols and a system for reporting danger. If you feel vulnerable, use a password system for the

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neighborhood limits, and change this regularly. You can also organize a crèche system for young children and activities for teens, including a rudimentary school.

It should be clear to everyone in the community that major incidents need to be officially reported. This includes security issues and also diseases that might spread. Even something as harmless as the flu can become a deadly epidemic in the post EMP world. You should agree on quarantine measures before anything occurs.

It's very important to keep records—of jobs done, who worked on what, how long was spent on each task, and what items have been borrowed. Community projects often lead to tension, and clear records can prevent arguments and also help you see how you could improve your projects by allocating resources better.

Day 18 – REDUCING DISEASE EXPOSURE

Prevention is always better than cure, so taking steps to stop illnesses taking hold is vital.

In most hot climates, one major disease vector is mosquitos. You can reduce the chances of diseases like malaria by taking simple steps to prevent bites. A mosquito net should be strung over every occupied bed as mosquitos are nocturnal. You should also try to eliminate pools of stagnant water nearby.

Most insects are attracted by food sources, whether that is split food, rotting waste, or opened packages. Regular, thorough cleaning should make most insects go elsewhere.

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Proper hygiene also prevents food poisoning, so wash up thoroughly, and don't be tempted to skimp if your water supply is low. Clean surfaces where you prepare food with a spray made with one part vinegar, one part baking soda, and water.

Deal with wounds and injuries immediately. Don't leave them to fester. Burns in particular can become infected easily, but you can use toothpaste as an immediate salve.

In very cold climates, it is the combination of cold and damp that causes most illnesses. Drying off quickly after bathing, sleeping in a warm, dry environment, and using a higher fat diet will all combat colds.

If one of your household gets seriously ill, you have a double duty to find them medical care but also to isolate them so their disease cannot spread. Losing manpower can be catastrophic post EMP.

Day 19 – HEATING, COOLING & INSULATION

Because your fuel supplies may be limited, it's important to use passive methods to keep your home heated, cooled, and insulated to avoid waste.

In extreme cold, your curtains may not be adequate. You can bolster their heat-retaining properties by adding extra layers of insulation over windows. Towels and old clothing are great for trapping heat, and reflective aluminum foil is also a fine insulator.

Check your home for any draughts or gaps where cold air can get in; ill-fitting doors are a common culprit. Fill gaps with balled up newspaper. You can also double up on carpets and rugs—the more layers, the better you will trap heat.

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Another heat loss culprit is ceiling insulation, so check the area between your roof and your ceilings. You may even have an empty attic up there. Old mattresses and furniture can be piled up there to help contain the heat within the house.

Extreme heat needs a combination of air circulation and building insulation. If you have a flat roof, you can simply put wooden pallets on there to make a barrier for the sun's rays and also let cooler air move around. Close curtains and window blinds to keep direct sunlight out of rooms, but encourage air to circulate by leaving vents open.

Consider rigging up some hand-cranked fans for the height of summer. Unbolt the motor from an electric fan, and connect a handle directly to the shaft to turn the propeller.

Day 20 – BUILDING A ROOT CELLAR 1

A root cellar is the ultimate way to store fresh food, like your own electricity-free refrigerator with a huge capacity.

Choosing a root cellar means finding a place that is damp and cool year round—like a cave, a cellar, a basement, or just a trench dug in the garden and covered over with a tarp. In a pinch, a closed-in patio or even an unused closet can be used.

The climate in your area will dictate what kind of root cellar is feasible. If it's very warm and dry, you could use your cellar to store sun-dried products and nuts. If it's very cold, you may need to use composting manure (which heats up as it

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decomposes) in pits within your cellar to keep the temperature up.

If possible, look for a way to make a dual chamber root cellar—one cold and damp, the other warm and dry—so that you can store a wider range of foods.

Consider how to get into and out of your root cellar, and ensure it can't become cut off by heavy snowfall or flooded by heavy rain. You will want to choose somewhere you can secure properly as root cellars are a magnet for roving animals.

Begin by cleaning out your space thoroughly, looking for evidence of rat droppings or insect infestations. Get rid of anything edible, and cover any windows or openings so the space is totally dark. To maximize your storage space, build shelves if you can because you will want plenty of space between stored foods.

Day 21 – IMPROVISED GUNS & AMMO

Firearms are an important hunting and security tool, but limited ammunition and repair facilities mean you need to learn to improvise to ensure you have the means to fight and hunt long term—mainly through reloading your ammo. Check that any firearms are working and have sufficient ammo, and leave improvised weapons like baseball bats and golf clubs in handy locations near entrances.

You will need a good supply of brass cartridge cases as no other material can be reloaded. You may be able to find spent cases from a nearby range, and blank cases can be bartered for because many people will not see their inherent value. First, inspect your cases, looking for cracks and any areas

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near the base that are bulging out. Misshapen cartridges can misfire if reloaded, so discard any that have flaws. Clean the cartridges thoroughly using a stiff wire brush and also lubricate them with engine grease, if possible.

Provided you have a supply of dry gunpowder, either stored or extracted from fireworks or flare cartridges, you will now need to cast bullets and use a press to reload your ammo. By melting down lead over a stove and using a simple ladle to fill a bullet mold, you can easily make cast lead bullets.

Melt the lead in a heavy pot; this usually takes 10 to 20 minutes at least and requires a temperature of about 600°F. Lead fumes are toxic, so it is best to do this outside. Pour the molten lead into the mold, and after a few seconds, it will have hardened, and you can tap the mold to release the cast bullet. Leave the bullets to cool for at least 24 hours before you try reloading.

Day 22 – BREWING & DISTILLING

Not only is beer great for entertaining and bartering but it also keeps for long periods thanks to its alcohol content. You probably already have a suitable grain for making beer. You can use rice, wheat, corn, millet, barley, or mixed grains. You will also need a big pot, a barrel to brew the beer, a piece of flexible tubing to act as a siphon, a mixing spoon, and empty bottles to put your beer in when it's done.

Make sure everything is clean by sterilizing it in boiling water or with a solution of bleach and water.

First, make a malt by washing your grains, removing the chaff, and then leaving them in the pot, covered with water. After eight hours, drain them, and leave them uncovered for another eight hours. Then

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repeat the soaking until little shoots appear on the grains.

Spread this mixture out, make sure it has drained properly, and then cover it with a trash bag. This needs to dry until it is crunchy. Crush the grains up, and then make your yeast. Add 1 ½ pounds of white flour to a gallon of water, and shake it up. Leave this until a froth forms after a few days.

Finally, put two gallons of boiling water into the barrel, and leave to cool. Meanwhile, add the grains to three gallons of boiling water, and stir for about an hour, until froth forms. When it has cooled to around 90°F, add the yeast, and give it a good mix. Leave the mixture to brew in a warm place for at least two weeks; then siphon it out into bottles, using a muslin cloth as a strainer if needed.

Day 23 – ENTERTAINMENT & COMMUNICATION

Those with kids will know how important entertainment is, especially in a crisis, so don't overlook the value of downtime and relaxation.

Dig out old-fashioned games like cards, board games, and even dice. You might have musical instruments lying around, and you probably have plenty of books, so you can arrange a library system with other homes.

Your immediate family and your survival community depends on good communication and good morale. Firstly, keep everyone involved in day-to-day tasks. Even young children will benefit from a sense of purpose and being part of a team, so don't be afraid to delegate.

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Secondly, meet regularly, every day if necessary, to discuss issues, air grievances, and keep everyone bonding. It might be helpful to organize a lecture each time you meet. This could be on some survival skills, but equally, encouraging everyone to teach and learn a little—a new language for example—can help pass the time and keep peoples' minds active.

Thirdly, consider if you can communicate over longer distances with letters. People will still be traveling, and it may be possible to arrange a delivery by bartering.

Getting exercise can be especially important in the winter months, where the cold and staying inside for long periods can lead to lethargy. Even a regular long walk, provided the route is safe, can stave off the chills and keep blood circulating.

Day 24 – BUILDING A ROOT CELLAR 2

Keeping conditions right for long-term storage means adjusting the cellar to control heat, light, and humidity.

Temperature is the first key to a successful root cellar. Without an endless supply of fuel or propane, keeping the cellar at the right temperature relies on your use of insulation. Insulation helps maintain a constant temperature.

Your containers should be layered with insulation—like shredded newspaper, paper cut into strips, sawdust, or even peat moss. Start with an inch on the bottom and a $\frac{1}{4}$ of an inch between layers. You can also insulate the walls and floors of the cellar itself

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with soil, old insulation from your house or layers of old newspapers.

If you have a thermometer and a hydrometer (for humidity) around the house, they are most valuable in your root cellar to monitor conditions.

Now is a good time to plan your harvesting and foraging so you pick your crops at the right time. Most root vegetables should be harvested at the last minute, when temperatures have already dropped, but carrots are easily damaged by frost, so pull these up early. Kale, leeks, onions, cabbage, cauliflower, and celery can be left in, and turnips, parsnips, and horseradish actually improve if slightly frozen. Make a note of your planned harvest dates so you are ready well in advance.

Keep an eye on the ground as it gets colder to make sure it doesn't freeze solid.

Day 25 – IMPROVISING DENTAL HYGIENE

Dental problems are a potential nightmare, so preventing crippling toothaches is important, and having an emergency remedy if the worst happens can save you from having to perform extractions with crude equipment.

For cleaning teeth, baking soda is so effective that this pioneer toothpaste is now found in pharmacy brands. All you need to do is wet the toothbrush and then cover the bristles in baking soda or baking powder. You'll actually feel this fizzing as it does its job.

To make an actual paste, you can combine 6 teaspoons of baking soda, 1/3 teaspoon salt, and 4 teaspoons of glycerin along with some crushed mint

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leaves or mint flavoring. Beat it until it has the same consistency as commercial toothpaste.

For toothache, you can disinfect the problem tooth by chewing a garlic clove or an onion; both are powerful antibacterial agents. A pinch of salt adds to the potency of these remedies, but for a stronger disinfectant, make your own clove oil.

In a clean jar, mix together olive oil and either whole cloves or powdered cloves. The more cloves of either type that you add, the better. Seal the jar up, and leave this to stand for about two weeks. The resulting oil can be spooned or rubbed into an infected tooth or gum and can also be used to relieve sore throats.

Gargling with alcohol, like vodka, or with a weak solution of hydrogen peroxide and water can help to keep your mouth clean and fresh, and this can also provide some pain relief in an emergency.

Day 26 – BUILDING A ROOT CELLAR 3

Your food needs very high humidity to stay fresh, from 90% to 95%, so you will need to keep the air moist. By using evaporation, you can set this up so it happens passively.

With earthen floors, tiles, or concrete, you can simply sprinkle water on the ground regularly. When the floor is dry, repeat. Equally, you could try hanging wet linen, towels, or pillowcases up with rope and pegs. Alternatively, simply put buckets of water out—the wider the container, the better—and let nature do its work.

Remember that the reverse is also true. Go beyond 95%, and you could find fruit and vegetables rotting very quickly, so it is a good idea to monitor the

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humidity levels constantly. Excess water dripping from walls and ceilings, for example, means you need to open the doors and ventilate the cellar for a few hours. If the humidity is out of control, you may also need to raise the temperature using some improvised candles or a propane heater if you have gas left.

When fruits or vegetables like bananas ripen, they give off ethylene gas, which can cause other produce to rot. Good air circulation is thus vital. You should put an intake vent near the ground and one near the ceiling, which will keep the air cycling.

Never pack stuff in so you use every conceivable inch of space. Make sure crates and boxes are off the floor, with lots of space between them and between individual items for air to move freely. You should also leave one to three inches on each side between your produce and the container.

Day 27 – MILLING, SAWING & STAMPING

A waterwheel will provide you with a limitless source of free power with very little effort needed for maintenance. Whether you're milling, sawing, stamping, or just turning a generator for power, this is the simplest off-grid pioneer technology to implement.

Firstly, you will need to supply your wheel with water from above or from an equal height to your waterwheel. Look for a fast-moving stream nearby, where you can use a sluice to channel water to a wheel. You will usually need to dig a pond around the site for your wheel to accommodate it.

Next, you should work on the waterwheel itself. The principle is very simple. The flowing water fills

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buckets strapped to a wheel, pushing the bucket down with the weight and thus turning the wheel.

The easiest way to build a waterwheel is to first put up a frame to hold it. You can use steel pipes, wooden supports, or bricks. Your axle could come from a scrap car, an old pipe, etc.; it just needs to be strong enough to hold the weight of your wheel and the water in the buckets.

To save time, use plastic buckets instead of making your own. Then can be secured to spokes made from pipe or from timber. Use bolts as fastenings rather than screws as they are stronger.

The axle from your waterwheel could be strapped to a simple generator to produce electricity, or, using gears stripped from cars or garden equipment, you could rig up a mill to grind or an oscillating saw.

Day 28 – SECURING YOUR HOME

It's time to go beyond basic security checks and take care of the long-term security of your home.

Cover windows in cling film so if they are smashed, they will not shatter. Consider reinforcing doors with wooden planks and surplus metal hardware in the event someone tries to ram their way in.

You should also look at the possibility of transplanting intruder-deterrant plants like thorn bushes or stinging nettles to strategic locations and screening off entrances and weak points like bay windows using foliage. Equally, keep anything valuable, like bikes, out of view. Use a chain and padlocks or even rope to secure objects in your garden or on your land.

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Provided you thoroughly brief your family on their locations, you can dig small holes in lawns and make covered pits to slow down intruders should they breach the perimeter. Broken bottles, rusty old barbed wire, and broken crockery are good visible deterrents.

The key to all these activities is making other people's homes an easier target by comparison with yours. The more effort, potential pain, and hassle required to break in, the less likely you are to become a target.

Now that you and your family are more confident in your environment, you may find yourselves out of the house, so organize a schedule to ensure it is never unattended.

Day 29 – BUILDING A ROOT CELLAR 4

Your root cellar is designed for fresh products, so selecting the right things to store in your root cellar is essential.

Never store canned or dried goods in the root cellar. Cans rust, and dry foods will quickly become moist and rot. These kinds of produce need a cool, dry place, preferably inside your home.

In addition to fresh vegetables, bottled drinks of any kind are perfect candidates for the root cellar as they will be kept cool. You can also put water containers in the cellar for the same reason. You can also store milk, cheese, dairy products, and cured or smoked meats.

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When selecting fresh produce, look for bruising, blemishes, and rot on anything you plan to store, and cull these fruits or vegetables by using them to cook with immediately. Handle items with care because bruises will turn into rot.

Root vegetables should not be washed, and the roots should not be trimmed; just scrape away greens and the leaf area.

Your biggest enemy will be pests, so ensure that cracks and holes in the walls are patched, cover vents with mesh, and check for light leaks. Periodically check that lids are airtight. Never keep food on the floor, where rats and insects can attack it easily.

Finally, label everything in your cellar, keeping track of the date stored. It's also a good idea to put a projected use-by date on the label.

Day 30 – LONG-TERM SURVIVAL PLANNING

By now you are self-sufficient, and to keep moving forward, you need to plan for the future. The keys are expanding your world and going from an emergency to a long-term mentality.

You must first start looking beyond your survival community and the local area. Traveling on foot is a major limitation, so think about non-mechanized transport. If you can acquire a horse, a canoe, or a bicycle, you can explore a much wider area.

Look for resources that have been abandoned, make contact with organized groups, and check for news of political and other developments. Trading and bartering in larger markets will give you the opportunity to find rarer items at a lower cost.

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Your long-term thinking involves going from, say, collecting rain water to digging a well to provide water for years rather than a few days at a time. In the same way, keeping animals like chickens or goats will give you milk, eggs, and meat for years rather than the few small animals you could trap.

You should also plan ways to save time and effort. In a survival situation, it is easy to become so trapped by day-to-day chores that no long-term improvements are possible. To break the cycle, think smart. For example, instead of collecting firewood for a week, plan ahead, and cut and store the whole winter's firewood in one operation. This kind of aggregating is more time efficient than lots of little tasks.

Above all, assume that the disordered post EMP world will last indefinitely, and stay positive.