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# Food Security

## 1. Fast and reliable

This section will focus on getting started finding and growing your own food. Quick and dirty, we won't be building raised beds or starting a large compost pile. **That being said, plan ahead.** If you have the time to set up amenities that will make gardening easier that's great, if not, plan for redundancy. There may be enough room to till your soil for quick harvests, while building beds nearby.

*Section 2. Permaculture will be for longer lasting techniques.*

## Foraging

Attempt to forage only in areas you know are not sprayed with chemical weed killer or pesticides, most public parks do so. Rinse everything you collect, double so for what could have been sprayed. This can be done in buckets as to not waste water. Use a separate bucket for sprayed plants and the non-spray bucket for the second rinse, only after all non-sprayed plants have been rinsed.


Attempt to forage only what you know to be edible. This will vary by region. As soon as possible, familiarize yourself with the local "weeds" and edibles. Here are some examples of common plants great for foraging, and how to tell them apart from their poisonous cousins.

### Plantain





Young leaves will taste less bitter and will go well in soups and stews. They can be eaten raw, dried, or baked lightly with olive oil and spices for a crispy chip. The seeds can be ground into flour or sprinkled on salads. Plantain also has medicinal properties and can be added to balms or lotions, ground or chewed into poultices for bug bites, or placed directly onto small wounds to aid in recovery. No toxic look-a-likes.

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### **Dandelion**



All parts of the dandelion plant are edible while raw. Not pleasant, but edible. Saute the greens and flowers. The younger leaves will taste better. I wouldn't recommend trying to eat the seeds. The roots can be eaten but if dried, roasted, and powdered, makes for a semi decent instant coffee replacement. No toxic look-a-likes.

### **Wild Carrot**




aka Queen Anne's lace, or Birds Nest Flower. The root can be eaten like a woody carrot. It grows in layers and so can often be eaten without washing by peeling the outer layer away. Looks like Poison Hemlock. The easiest way to tell the difference is that the flowers of queen Anne's lace contain a single red or purple flower at the center of their formation. The story to help remember is that queen Anne pricked her finger, and a single drop of blood stained the lace. The leaves and stalks also have differences, but hemlock will not contain the single red or purple flower.

### **Miner's Lettuce**





Most common in colder climates, will pop up in the spring. Whole plant is edible, but if dry and sunny will turn red and develop a bitter taste. Punch just between leaf and stem. No toxic look-a-likes.

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## Stinging Nettle



Avoid when flowering, any tendrils coming from the stem that aren't leaves, when flowering stinging nettle produce calcium carbonate which will interfere with kidney function. Use gloves to harvest to avoid stinging. Younger plants will taste better. Blanch or steam, then chop like any other leafy green, stalk and leaf. Nettle look-a-likes, such as purple dead nettle and wood nettle can be prepared the same way. Clearweed and false nettle are not toxic but are considered non-edible.

## Gardening

If you have yard space, you can grow food. Without access to compost or garden soil, you can till the dirt in your yard to plant seeds and starters. Tilling is the act of loosening the soil and turning it to mix, using a hoe, pickaxe or similar tools. This can ruin the integrity of good soil, so it's best to use sparingly. Ideally, if soil is unfit for planting, there are a couple no till methods that will be included in the Permaculture section that require the addition of good soil, or extended periods of time.

With tilled, non composted soil you will need to feed your plants with liquid fertilizers and kitchen scraps buried below the roots. Fruit and vegetable scraps are great to bury in your garden. Things not to bury: meat, dairy, fats, oils, pet waste, diseased plants, and anything inorganic. Anything you bury should be chopped, blended, etc. in order to break down for your plants faster.

An easy way to make liquid fertilizer is to weed your yard and garden. Many weeds pop up in your garden to bring nutrients to the soil that it's missing by tapping further into the ground.

Fill a bucket halfway with these weeds and cover with water, seal and allow to ferment for a few weeks in a dry place, stirring every few days. Dilute with water at around a 1 to 10 ratio and use



The last important part of gardening is ground cover. Mother nature doesn't like bare ground, if you don't cover it she will. Ground cover plants such as mallow, squash, clover, etc. can work for this but just as good is a mulch. This can be wood mulch or if you have no access to mulch you can use grass clippings/ cuttings. Add 1-2 inches when plants can peak above about 1-2 inches above. This helps with water retention, temperature control, and nutrient delivery, as when you water over plants nutrients will seep into the soil from the mulch.

## High yield and quick harvest crops.

Plant multiples but save seeds in case you can't obtain any from your growth. Avoid monoculture, plant multiple plants together, with enough space to breathe. Some plants work well together but others will work against each other.

- **Sprouts**

Certain plants can be sprouted and eaten as sprouts within just a few days. This can double up as seed starting, and seeds can be saved from matured plants to start again. Lentils, alfalfa, mung beans, broccoli and radish make good sprouts. Do not use tomato, paprika, eggplant, or rhubarb. You'll need two containers, one that will drain water and one that won't; your seeds; and water. In the non-draining container, soak your seeds with water overnight (~12 hours), covered with a lid, napkin, washcloth, etc. Strain seeds and spread them over the draining container, try to distribute evenly to prevent mildew. Set aside over top of the non-draining container to catch any left over water. This is good water to use in the garden, full of nutrients from the seeds. A couple times a day (*at least twice*), rinse the seeds and re-spread them in the draining container. Be sure to rinse before night, they shouldn't be left more than 10-12 hours without being rinsed. After 3-4 days, a white root should be seen emerging from each seed. At this point, exposing them to sunlight will increase their nutritional value. Continue rinsing for a few more days. At the 5-6 day mark, your sprouts should be fairly green and ready to eat raw or cooked.

- **Beans**

Bush beans are a great place to start as they don't require any trellis to grab on to and can start producing pods in less than two months, and will continue to produce if you keep them picked. Can be planted any time in the warm season, after ground has thawed. Seed directly into the ground 1 inch deep, 2 inches apart. Need a lot of water, water whenever soil is dry, about 2 inches a week after flowering. Prefer full sun. Freeze or can to preserve. -Keep away from: garlic, onions, peppers, sunflowers

- **Zucchini**

Zucchini is a summer squash, best planted after any danger of frost. They require vine support, a trellis or string to climb. Keep soil moist and harvest when fruit is 6 to 8 inches long. Seed 1 inch deep and 2 to 3 feet apart. -Keep away from: pumpkins, potatoes

- **Radishes**

Hardy root vegetables, can be planted in both spring and fall, summer heat will stunt growth and cause bolting. Give them as much sun as possible, even shade from other plants will produce larger leaves and smaller roots. Sow 1/2 to 1 inch deep, 2 inches apart. Keep soil evenly moist. Sow every 10 days for continuous harvest. Finish harvest before frost. Some varieties can be harvested 3 weeks after sowing. -Keep away from: hyssop, kohlrabi

- **Spinach**

Cold hardy, plant in early spring, fall and early winter. Requires 6 weeks of cool weather from seed to harvest. Full sun to light shade. Sow 1/2 inch deep every 3-4 inches. Keep soil moist. Weed carefully, roots are easily damaged. -Keep away from: potatoes, dill, fennel, sunflowers



## • Potatoes

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Seed potatoes from certified stores will be disease resistant, however any potato can essentially be planted as seed. Plant 2 weeks after last spring frost. Potatoes like sunny, cool weather and well draining soil. Seed potatoes can be cut into golf ball sized pieces as long as each piece has 1 to 2 "eyes" (*divots, or pits that will grow stems*). Plant near soil's surface, covering with 3-4 inches of soil. Maintain even moisture, especially after sprouting. As the stems grow, cover with soil or grass clippings to cover stems, leaving a few inches above. Make sure any growing potatoes are covered. Exposure to sunlight can turn the potatoes green and toxic. Discard any fruit from above ground vines, they are toxic and will not produce more potatoes. Harvest 2-3 weeks after foliage dies. Cut foliage and bury or use in composting. Avoid cutting potato skins, growing medium should not be compact. Put fresh potatoes in a cool dry place to cure skin for up to 2 weeks, though they are ready to eat. Bucket method: Potatoes can be grown without yard space in a bucket. Plant seed potato(es) with 3-4 inches above and below. Drill holes in your bucket to drain soil better. Drill holes in the side of the bucket to allow more tendrils to reach the sun. -Keep away from: tomatoes, squash, raspberries, carrots, asparagus, turnips, fennel

## • Carrots

Make sure soil is loose, plant in spring or fall, can tolerate frost. Used coffee grounds make good fertilizer. Sow 1/4 inch deep 3-4 inches apart. Can take 3 or more weeks to show leaves, patience. Covers that allow light through can help prevent pests. Cover after sprouting and only uncover to water, weed, or harvest. Water when dry, keep moist once roots begin to mature. Brush away much and surrounding soil to see the top layer of root development (sparingly). Harvest when desired. Frost encourages tastier carrots. Keep away from: anise & dill.

## 2. Permaculture

Permaculture in this guide refers to establishing a self reliant garden. This is not a comprehensive guide, but direction on where to begin. If we don't think about these things we run the risk of depleting our soil of nutrients and becoming susceptible to crop failure. Learn to listen to the land.

### Guild planting

Certain plants work well together, utilizing this is called companion planting, or guild planting. A well known example of a guild are the three sisters: Corn, Beans, and Squash or Pumpkin. Plant your corn first, after any threat of frost has passed. Once it's grown about 5 inches or so, plant your pole beans beside each corn plant. The corn acts as trellis for the beans, and the beans help supplement nitrogen for the corn. Once beans have sprouted and begun climbing, introduce started squash or pumpkin which will act as ground cover, helping to keep weeds down and pests away. This is one example from the first nations of how you can use the natural aspects of plants to your advantage. Look into the farming methods of indigenous peoples in your area.

Many herbs can act as repellents, masking the scent of your main crop. Dill and basil protect tomatoes from common pests, while marigolds can repel beetles and some animal pests. Aphids will prefer Nasturtium to anything else, plant some away from your crop and deal with them there. Carrots, dill, parsley, and parsnips will attract praying mantises, spiders, and ladybugs that will eat insect pests. Some plants just exist well next to one another. Chard and other leafy greens appreciate the shade of corn or sunflowers, as well their roots occupy different soil levels and so don't compete for nutrients. Trees often fit well into plant guilds. Fruit trees, nut trees, and even citrus trees can be highly useful to neighborhood autonomy. Attempt to grow native species of trees, so that they can be here long after you.



Many crops listed in this guide have plants they do not work well next to, as they will compete for nutrients or have other negative effects. As you grow, attempt to log the effects of different companions, and think of new combinations for next growing season. Never stop learning from nature.

## Mulching

It's been covered before, but mother nature does not like bare soil. If you don't cover it, she will with weeds. It's also been covered how those weeds can be turned into liquid fertilizer. Another method to mulching is called chop & drop. Roots of your crops attract microorganisms that promote healthy soil, so anytime we can leave the roots of crops we are no longer growing, we should do so. However, once harvested you'll want to make room for the next crop. This is where we recommend you chop at the soil level and drop those leaves and stems right where you are, acting a mulch and returning all those nutrients to the soil. You can chop these smaller to decompose faster, and/or work them into the soil.

When using wood chips as mulch, attempt to keep them above the soil, and not work them into the soil until they are no longer recognizable as wood. Use a rake or your hands to move your wood chips aside before doing any soil work, then move them back when finished. This is because wood consumes nitrogen to decompose, and if buried, will pull from the soil what the crops need to grow. On the surface as mulch, it only takes a small bit from what touches the soil, not enough to hamper crop growth.

## Composting

The people of the first nations would bury fish, high in nitrogen, in the place they would plant their corn soon after. Feed the earth and it will feed you.

Examples of what to add to a compost pile: Vegetable and fruit scraps, eggshells, used coffee grounds, tea bags, grass clippings, leaves and small branches. What not to add: Meat, dairy products, fats, oils, pet waste, diseased plants, anything inorganic. These organics can be composted but will cause problems if you do not have the right conditions. If you'd like to start composting these things, it is possible with some extra research.

Turn your organic waste into useful soil and fertilizer. The easiest way to begin composting is to chop kitchen scraps into small pieces and bury them in the garden where no critters are going to dig them up, no deeper than 3 ft. This is often best done a few weeks before planting your main crop. The next easiest way is to begin a heap or pile in an unused corner of the garden. Work with your community, it may be easiest to find a spot for a community compost pile.

There is a most efficient ratio between "green" and "brown" material but no matter your ratio, the organic material will decompose and become a nutrient rich soil amendment. Keep a pile of grass clippings near your main compost pile and use those to create a layer over anything you place in the pile that will attract flies, critters, or cause bad smells. Keep you pile moist to help with decomposition.

Aim to "turn" your pile every few weeks. Using a pitchfork or shovel pickup, rotate, mix your compost pile. This is usually easier to do if you have a second spot nearby to put your pile, also freeing space to start another "first" pile to place your new scraps in without mixing them with another stage of decomposition, which creates pockets of scrap in your soil. Compost is ready when it looks dark and crumbly and has an earthy smell, with no recognizable scraps.



If you have some worms and a few buckets (3) you can make your own potent fertilizers, both liquid and solid. Two buckets will need small holes drilled in the bottoms, big enough for the worms, and the third you will want a spigot or cork, something to drain the bucket with. The bucket with the drain should have something like a brick to sit inside, to ensure the next bucket won't sit in collected fertilizer. The next bucket will be filled with food scrap, be sure to add some smashed eggshells or a bit of sand: worms need grit to digest organic material. A layer of grass clippings or straw on top will help keep smell and flies away. As the worms feed, keep them moist by misting the scraps every few days. The next bucket can be filled and set a top the second. The holes at the bottom will allow the worms to move up towards the new food when they've finished what they are in. When they do, the bottom bucket can be added to the garden. As you water the worms, collect what pools in the lower bucket, this is known as worm tea, dilute it and feed it to your plants. Not good for drinking. Worms are really good at 2 things: eating decaying organic material, and multiplying. You can start with 1 worm, it may be slow going at first but you can add them as you find them in your garden. Before you know it you'll have enough to use as bait.

### 3. Preservation

How do we eat outside the growing season? How do we even eat a few weeks after harvest when the food begins to wilt and go bad? Different crops have different storage methods, and you should take wisdom from those who have preserved their own food before, as this can be life or death.

#### Curing

Allowing certain vegetables to sit in a dry, room-temp environment to harden their skins and protect from spoilage. Potatoes, pumpkins, garlic, onions, shallots, winter squash, and sweet potatoes will benefit from a curing process and can last up to 6 months sometimes, depending on storage method. Most prefer to be stored in a dark, cool pantry.

#### Blanching

For best quality, you should blanch most vegetables before freezing, drying, or dehydrating. This is just the act of boiling a vegetable for 30 seconds to 2 minutes, then using cold water to shock. This preserves color, texture, and flavor.

#### Fermentation and Pickling

Fermentation is the process of allowing food to sit in a brine and produce beneficial bacteria. The process of pickling lowers the PH of the food to the point of killing most bacteria. These methods are similar but not the same, and both have ways of going wrong. Find a more comprehensive guide for these methods, but we will walk over a simple fermentation recipe and how to tell if somethings gone wrong and you need to compost the jar contents and start over.

You will need:

- Air tight jar
- Chopped vegetables (fill the jar to 1 inch below the rim)
- 1 1/2 tablespoons of salt



- 1 quart clean water

- 1 cabbage leaf (alternatives available, read on)

#### Instructions:

1. Wash and chop vegetables into chunks or sticks, fill jar leaving 1 inch of space at the top.
2. Mix the salt and water to create a brine and pour over the vegetables, still leaving 1 inch of space at the top.
3. Remove any air bubbles with a butter knife or other utensil.
4. The cabbage leaf can then be used to secure all your vegetables below the brine. Depending on your jar, some carrot sticks crossed and tucked can be used, or a clean glass puck, or even a clean rock.
5. Now, close the lid. And store at room temperature. If your lid is metal, use a layer or two of plastic wrap to prevent corrosion.
6. Using a regular lid, you will need to “burp” the jar every day or two to release pressure. Simply unscrew the lid until you hear pressure escape and then reseal.
7. You can allow this to ferment as long as you’d like, until desired flavor is reached. Cold storage will halt fermentation.

If you notice brown spotting on your vegetables, mold or slime on the brine (a white film is normal), a foul odor (sour is normal), these can be signs of oxidation and you should compost and start over.

Fermentation produces CO<sub>2</sub>, which is why we need to burp the jars. Otherwise your jars can break, and your brine will leak everywhere. It may be best to store your fermenting jars in a bowl or pan that will catch anything that leaks.

## Dehydrating

There are many methods of drying or dehydrating foods, and many different recipes for doing so. You can blanch and dehydrate onions and garlic and turn them into powders or long lasting soup additions.

The easiest method of dehydrating is to turn you oven on the lowest setting and propping the door open, allowing air flow. That’s all that needed, a low heat and air flow. In some places, you can even use the heat of the sun. Ensure what you want to dehydrate is showing as much surface area as possible by slicing or dicing it. Fruit leathers can even be made by blending fruit leftovers and spreading it on parchment paper to dehydrate.

## Canning

While preservation methods like fermentation and drying have been used by humans for most of known history, canning is relatively new, occurring in the early 1800s. It breaks the rules off natural preservation by keeping food wet and without airflow in and anerobic environment. Follow canning recipes with precision to avoid diseases like botulism. Without a specialized pressure canner you can still use water bath canning to can high-acid foods like pickles, fruits, jams, salsas, tomatoes, and vinegars. Best to prep water bath before cooking recipes.

You will need:

- Large, deep sauce pot with a lid and rack (to keep cans from touching the bottom of the pot)
- Glass jar with lids and bands (re-used lids are less likely to seal)



- Jar lifter (something that can safely grab a jar from inside boiling water)

- Butter knife
- Pairing knife
- Ladle
- Funnel

Instructions:

1. Fill pot at least halfway with water, cover and maintain a simmer until jars are filled and placed inside.
2. Wash all jars and lids in hot soapy water.
3. Check for cracks in jars or sealing issues with lids, rinse and place jars in pot to preheat (if canning hot food).
4. Prepare food for canning.
5. Remove jars and fill using funnel, knife, etc. Use a butter knife or rubber spatula to remove trapped air from the jar. Leave space between food and lid, varies by recipe.
6. Use a clean, damp cloth to remove any residue from the top of the lid and threads. Cover with lid and secure with band, finger tight.
7. Place jar in canner, repeat until all jars or all food is used. Attempt not to let jars touch, can cause breakage. Ensure water covers jars by 1-2 inches.
8. Place lid on pot and bring water to a rolling boil. Allow to process depending on recipe.
9. Shut off heat and remove pot lid. Allow to sit for 5 minutes to acclimate. Remove jars and set upright on a towel, leave jars undisturbed for 12-24 hours.
10. After, inspect lid seals, should be no flex when pressed. Remove band and lift jar by the lid, it should remain secure. If lid hasn't sealed, refrigerate immediately. Otherwise, should be good for up to 18 months stored in a cool, dark, dry place.
11. Be sure to label your jars with what it is and when it was canned. Refrigerate after opening.

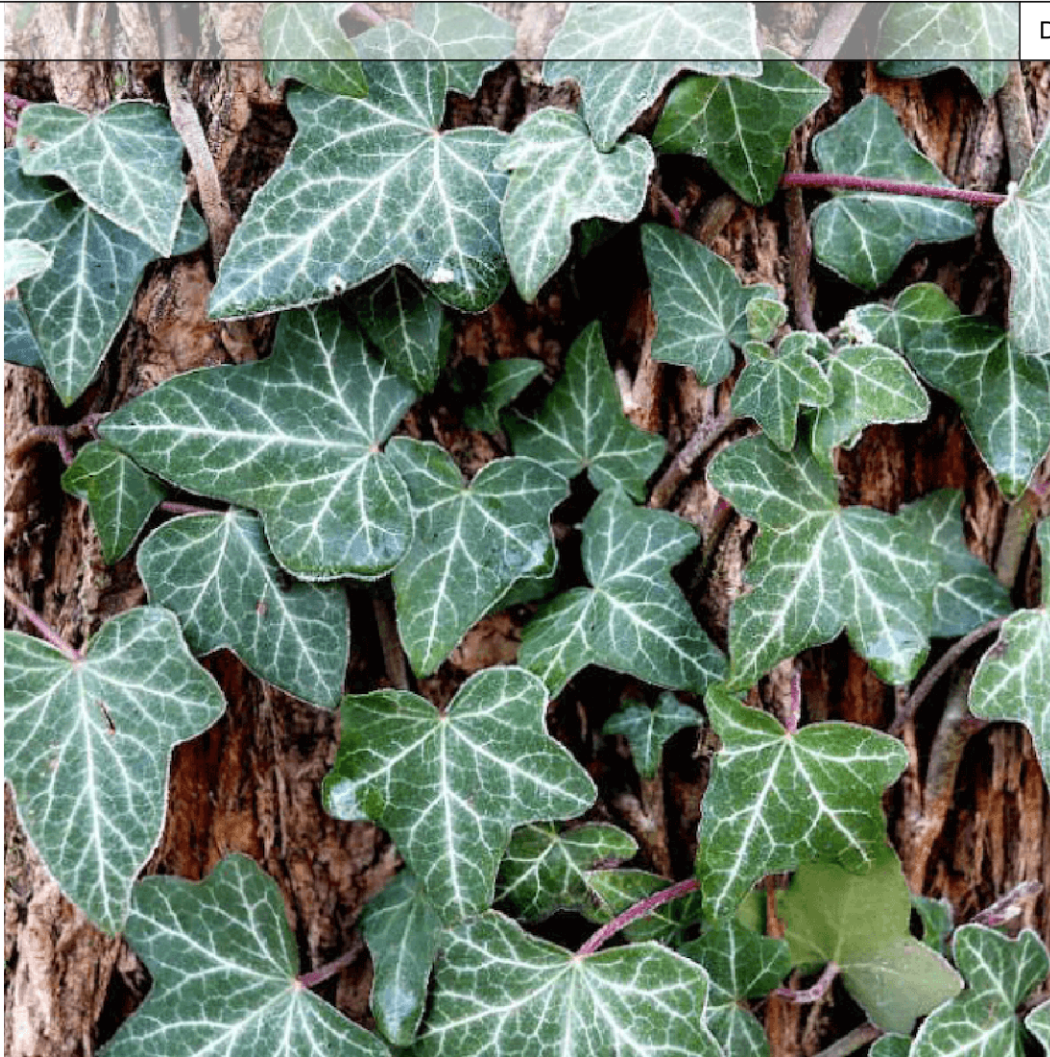
## 4. Cleanliness

Staying clean is important to staying healthy. Here are a few different ways to do so without the supermarket.

### Vinegar

Vinegar is a useful disinfectant and can be made at home with sugar, water, and fruit scraps. In a sealable jar, add about 1/16 it's volume of sugar (if it's a gallon jar add 1 cup) and fill halfway with warm water. Add your fruit scraps (orange peels, apple rinds, etc) and top off with more water. Seal and shake to dissolve sugar. Unseal and use a butter knife or plastic spatula to ensure no air bubbles remain. Cover with a cloth or fabric and secure with a rubber band or something similar. Let sit in a warm spot for 30 days, strain and store in a clean container. Use your vinegar for disinfecting kitchen counters, canning supplies, etc.

### English Ivy



English Ivy is an invasive species to north America, turtle island. We do not recommend cultivating it, but if it grows nearby it can be a useful detergent for laundry, floors, and other surfaces. We recommend using gloves to harvest and handle.

If washing in a basin (laundry machine, etc) a few leaves of ivy wrapped in something that will allow for easy removal, like a sock, can be added to the water. Crush, crimp, or chop the leaves to increase the amount of saponin released.

To create a detergent, collect anywhere from 40 to 60 leaves and boil them in about 4 1/2 cups of water for 15 minutes. Let cool for a few hours and squeeze the leaves dry, add to compost pile. Drain the water and add to clean container. You now have a detergent. You can extend the shelf life by adding 1 part vinegar to 5 parts detergent.

## Soap

Remove bacteria and dirt from your hands and body with a bar of soap. To make this you'll need a fat, lye, water, and any aromatics you want to add. This process can be dangerous, lye is a reactive compound and safety should be prioritized. Whenever working with Lye you should wear eye protection and gloves and cover as much skin as you can. Wherever you are working with lye should be well ventilated. If possible, work should be done outside.

## Fat

Any animal or vegetable fat (oil) should do for this recipe. Animal fat should be rendered: cut up the fat and melt it in a pan with enough water to cover. Once melted, strain to remove any meat. Allow



to cool, fat and water will separate, pick up solid fat and scrape off any gelatinous build up. This last up to a year in a fridge or if sealed airtight, could last indefinitely. Throw out if smell becomes rancid.

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### **Lye (Sodium Hydroxide)**

Lye is made from steeping wood ash in hot water, or can be bought at your local hardware store. Use caution once lye is produced, eye protection and gloves heavily recommended when handling lye. Check your state and municipality for storage laws. Wood ash is different from charcoal, you want the white flakes leftover from a wood fire. Wrap your ash in a cloth, boil enough water to submerge (make sure water pot is not aluminum) it in and let it steep for about 2 hours. Drain the cloth and evaporate the water. You can boil this speed up the process, but allow the rest of the water to evaporate in the sun to avoid burning the lye. You should be left with a solid substance that looks like salt. Use gloves and tools to harvest and store in an airtight container of glass or plastic (aluminum will be damaged by lye). Label properly and store out of reach of children.

Instructions:

1. Mixing in a non-aluminum pot, and in a well ventilated area, slowly add 1 cup of cold water to 7 tablespoons of lye and mix well.
2. Warm the mixture to about 100 degrees Fahrenheit.
3. In another pot melt 2 cups of fat.
4. Mix the lye and fat together and stir until it reaches about a melted chocolate consistency.
5. This is where you would add your aromatics.
6. Let this set for a day or two.
7. Lye is still active, remove solid bar from pot and set out to cure for another 4 weeks.
8. After this, your soap is ready to use.
9. This is rough on the skin and will irritate the eyes, but it will help reduce the spread of germs and bacteria.

There are other methods of soap making, but you will always need lye and fat.

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