

make your place

affordable, sustainable
nesting skills



written & illustrated
by raleigh briggs

Make Your Place: Affordable, Sustainable Nesting Skills
written and illustrated by Raleigh Briggs

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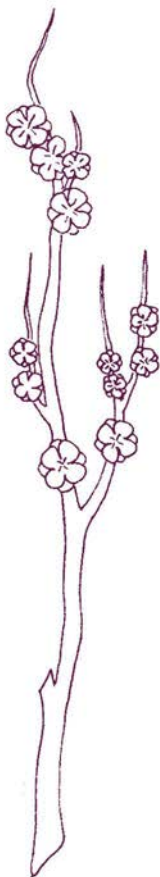


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Introduction

In 2005 I had the awesome opportunity to participate in DIY Academy, a short-lived but glorious low-cost summer school that I helped plan with a bunch of other volunteers at the zine archive here in Seattle. That first year, I volunteered to teach classes on herbal first aid and natural housekeeping. I have to admit that until that summer I did not afford a lot of esteem to these unsung, everyday disciplines of DIY: I scrubbed my tub with baking soda, and I took echinacea in the wintertime, and I loved doing those things. But it's hard to get people to want to come to your cleaning workshop without feeling pretty square, and secretly, my ego was a bit flimsy. Housekeeping just seemed so petty compared to the kids who were making beer + building bikes.

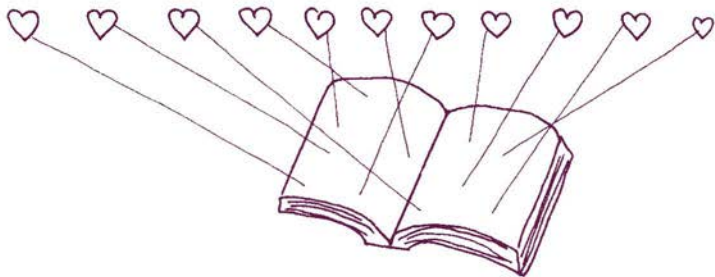
Still, I was excited, and I knew my workshops would be well-attended. I spent long afternoons researching and rubbing herbal concoctions on myself, and a few weeks later I was teaching my new skills to other people. In my cleaning class, we all sat around a big table and measured baking soda and borax into jars, adding drops of oils and bits of ground thyme. Like all successful chemistry, it was satisfying in a very primal way. What's more, no part of the process was trivial or mundane. Creating and using

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something homemade never is. I came to realize that my skepticism about the importance of these acts was based on a cultural belief that the domestic sphere is somehow less important than the public sphere. Which, of course, is such a load of crap. If we DIY only the elective, recreational parts of our lives - or only what other people can see - then how much of our lives are we really reclaiming?

There are twin ideas behind this book - and the zines that led to this book, and the summer school that led to the zines that led to this book. The first of these is that reduced consumption trumps conscious consumption in every contest. For this reason I've tried my hardest to provide reused and/or recycled options for all the recipes and projects in this book; everything else can be found at the thrift store. I encourage you to try these projects out with friends, pool your resources, and share new ideas for making these creations your own. Which brings us to our second tenet: DIY is for everybody! Gardening, homemaking, healing: these are all such basic aspects of human life on this planet, and they are important for just that reason. The tools to create a more intentional and

sustainable daily existence are rooted in the tiny,³
artless actions that we perform. These tools are
ours inherently. They shouldn't be limited to
people with a lot of time, space, or, for that
matter, experience. I am not interested in
championing one particular subculture: to me,
DIY is not a show of prowess, or even a hobby;
rather, it is a necessary step towards living our
lives on our own terms. My greatest hope for
this little tome is for it to provide readers
with a set of skills for making their lives
better and that it does so in an accessible
and friendly way. Because we cannot depend
on a market-informed cultural consciousness
to enlighten us—we have to do it ourselves.

Thank you so much for reading this
book. I really hope you like it.



safety protocols

In this book, I've tried my best to include only recipes made with safe or safeish ingredients; however, like your favorite animal, even natural formulas can hurt you if you disrespect them. That said, here are some things to keep in mind:

Protocol 1: Natural \neq Edible

Even though compounds like borax and washing soda are far safer than most of the ingredients you'll find lurking in your local drugstore, they shouldn't accidentally get inside your body. Same goes for essential oils, which are far too potent to use internally. Wash your hands after mixing cleaners and label the containers you keep them in. If you have sensitive skin, wear gloves when you clean.

Protocol 2: Wildcraft with Care

I am confident that everyone reading this knows not to carelessly pull plants out of the ground and eat them. Still, it bears repeating that if you wildcraft food and herbs, you need to do your research. A lot of communities

offer free or low-cost wildcrafting workshops. ⁵
Check out local parks departments, agricultural nonprofits, community colleges, and punk houses or co-ops. At the very least, get yourself a full-color field guide with large photos, and when you do find something foragable, collect it in a respectful and responsible way.

Protocol 3: Think of the Unborn Children!

If you're pregnant, please avoid the following essential oils and herbs:

clary sage	calendula	sage
juniper	camphor	St. John's wort
cinnamon	comfrey	thyme
cedarwood	lemon balm	wintergreen
clove	neem	basil
anise	pennyroyal	myrrh



Protocol 4: Know Your Body

This, I think, is most important: if something makes you feel gross, or itchy, or you'd really rather take a pill, listen to your gut and do what is best for your terrifically free and unique body. This book is about making your life better, not about being hardcore.

Protocol 5: Plants Have Families

You know that botanical horror called ragweed? It's related to both calendula and chamomile. So if you have a ragweed allergy, avoid using any herb related to ragweed for cosmetic or medicinal purposes. Sorry.



chapter 1

Health

+
First
Aid

Whenever I get into conversations about DIY I find that certain ideas get echoed by many different people. Chief among these tenets is the idea that DIY is about making even the tiny bits of our lives intentional: we focus our energy on what we know is right for us, rather than what is dictated by a market or culture. I think herbal medicine and DIY healthcare are such a strong manifestation of this idea. There is definitely a place for conventional medicine - it saves lives, after all. It's quick and effective and familiar. But it has the unfortunate effect of distancing us from our bodies. Instead of questioning why we have constant digestive issues, for example, we end up just tossing pills down our gullets like we're balancing the pH of a swimming pool. It's cold and isolating, not to mention expensive.

Compare this to the practice of using herbs, which work in a broader, less symptom-focused way. In the DIY healthcare mindset, you would tone a weak GI tract and strengthen it, rather than dulling it with antispasmodics. Natural medicine often takes time, but within that time there is an invitation to actually witness your body changing. It forces you to pay attention to the systems of your body, and how they interact and signal each other. Over time, we become less afraid of our mysterious guts and tunnels, and thus, more confident in our ability to heal ourselves. And that's what this chapter is all about!



A Quick Guide to Essential Oils


Always use pure essential oil when you're making cleaners or remedies. Don't use anything labeled "perfume oil" or "aromatherapy oil." Essential oils can retain some of the antimicrobial, antibacterial, and antiviral properties of the whole plant. These oils are highly concentrated and volatile, so keep them in dark glass bottles away from direct sunlight and heat. And **DO NOT EAT THEM!**

Here are some oils that come in handy:

- Antibacterial: bay, camphor, cardamom, chamomile, citronella, cypress, eucalyptus, ginger, hyssop, juniper, lavender, lemon, lemongrass, lemon verbena, lime, marjoram, orange, pine, rosemary, sage, sandalwood, spearmint, tea tree, thyme

- Antimicrobial: bergamot, chamomile, clove, eucalyptus, hyssop, lavender, lemon, lime, myrtle, nutmeg, oregano, patchouli, tea tree

- Antiviral: cinnamon, eucalyptus, lavender, lemon, oregano, sandalwood, tea tree, thyme

 *NOTE: Please please please read the section on Safety before you use oils. It's important to me.

How-to^s - basic

recipes for salves, tinctures,
and sundry curiosities



The following recipes are a good starting point for any budding (hard) herbalist. One small note: if you have the funds and the space available, I would recommend keeping a set of cooking tools exclusively for the purpose of making herbal remedies. Ideally this will include:


- an enamel or stainless steel pan, double boiler, or slow cooker
- a funnel
- cheesecloth or coffee filters
- a mortar + pestle (...or a plastic bag and a trusty cudgel)
- dark glass jars and bottles - use the kind with droppers if you are making tinctures, and fatter, wider jars with twisty lids for salves
- larger glass jars (jam + pickle jars are excellent) with tight-fitting lids, for steeping and soaking herbs
- a stirring utensil

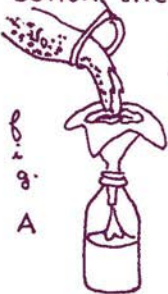
10 * making * tinctures *

A tincture is basically a combination of an herb and an appropriate solvent that is allowed to steep for several weeks. The result is a highly concentrated solution that captures the healing properties of the plant.

Tinctures are awesome because they're easy to make, portable, and if you make and store them properly, they'll stay potent for quite a while. They can be used to soak gauze for compresses, combined with creams or oils, or taken internally at a ratio of 30 or so drops in one glass of water, juice or tea.

To make a tincture, chop up a cup of whatever herb or herbs you are using (roots or woody stems should be dried and ground in a mortar and pestle). It is very important that you use dried herbs when you make salves + tinctures — the water in fresh herbs can harbor bacteria that will ruin your work. (Either lay herbs flat to dry or tie into small bundles and hang somewhere dry and sunny. To rig up a quick herb drying rack, secure herbs to a metal coathanger with some clothespins, and hang near a window or radiator)

Take your chopped herbs or roots and place them in a clean jar with a tight-fitting lid - a pickle or mayonnaise jar works great, just make sure it's a big'un. Cover the herbs with 5 cups of cheap 60 proof vodka; for a non-alcoholic version with some added health benefits, use  apple cider vinegar. Seal up your jar and hide it from your friends in a cool, dark place. Let it sit there for two weeks, and give it a good shake every once in a while.

When the two weeks are up, line a funnel  with several layers of cheesecloth and strain the tincture into dark glass bottles. Pull the corners of the cheesecloth into a nice package and squeeze out any liquid before tossing the solids.

Cap your tinctures tightly, make some cute labels for them and keep them away from heat and light.

Ta DAH!



★ making infusions, ★ decoctions + poultices ★ ★ ★ ★ ★

An infusion is a quantity of water or other liquid in which herbs have been steeped long enough for the properties of the herbs to transfer to the water. Usually, the water is first boiled, and then poured over the plant matter. Yes, this is pretty much the same thing as tea; in fact, I will use the words "tea" and "infusion" interchangeably in this book. To make an infusion, boil one cup of water for every teaspoon or so of dried leaves, soft stems, or flowers (we'll get to bark + roots in a second). If you're using fresh herbs, make sure to wash them well, and double the amount you're using. Pour the boiling water down over the herbs, cover and let steep until cool. The best way to do this is in a mason jar. For stronger infusions, use more herbs or let the jar sit for longer. When steepage is complete, strain out all the plant material, transfer to

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a clean jar, and refrigerate what you don't use right away.

Decoctions are a lot like infusions, but making them involves boiling the herbs and water together. This method is used for woody stems, bark and roots. Combine 1 oz herb with a quart of water and boil, covered, for 20 minutes. From there, follow the instructions for making infusions.

A poultice is basically a pulp made of herbs, and sometimes other ingredients, that is applied directly to the skin to treat swelling, bites, and so on. To make a poultice, grind fresh herbs until juicy and/or sticky. If you're dealing with dryish plants, moisten the mixture with a little clean water, or better yet, an herbal infusion or decoction.

Infused oils can be used for massage, skin and hair care. Bruise a handful of fresh herbs by rolling them between your hands, and stick them in an airtight bottle filled with your favorite carrier oil. I like almond, grapeseed, and cheap (not extra virgin) olive oils. Cap the bottle tightly and keep it in a cool, dark place, like a kitchen cupboard. Shake it once and a while and strain out the herbs after a week or so.

making salves

Salves seem intimidating, but they are surprisingly easy to make, and they're pretty impressive when they're finished. Salves protect and nourish the skin while it's healing. You can make salves by stewing herbs in oil and adding beeswax as a thickener and skin protectant. You can also use infused oils you've already made. For equipment, you'll need an enamel or glass pot, a wooden spoon, and a grater.

Salve A: Infused-Oil Method

- 2 oz infused oil
- 2 T grated beeswax
- 2 drops essential oil (optional)



Warm the oil over low heat until just hot. Add the beeswax and stir the mixture until all the wax is melted. Add the oil if you're using it.

Pour the mixture into a small glass jar and let it cool. At this point it should be solid. If it's too solid, reheat the salve and add another drizzle of oil. If it's too soft, reheat and add more wax. When it's the right consistency, pour it back into the little jar, cap it tightly, and label it.

Salve B: Stewed-Herb Method



2 oz dried herbs

1 cup (8 fl. oz) olive oil

1 oz beeswax (will vary according to how soft you want your salve to be), grated

Place the herbs and oil in an enamel pot, bring to a low heat (not a boil) and stew the herbs until the oil is dark green with herby juices (up to 3 hours). Stir occasionally. Strain out the herbs through two layers of cheesecloth and return the oil to the pot. Add the beeswax and stir until totally melted. Pour the salve into wee jars and let cool.

Variation: After the salve is cooked, beat it for a minute or so with an electric mixer or an egg beater, to make a creamier salve.

You can also try stewing your herbs and oil in a slow cooker set to low, for 8-10 hours.

Vegan Alternatives to Beeswax include soy wax, carnauba wax and candellilia wax. You'll have to experiment with the proportions of wax to oil, as these waxes behave differently than beeswax. Carnauba wax, for example, is much harder.

You might also try melting some virgin coconut oil, which is solid at room temperature, and infusing it, then letting it resolidify. Keep the oil in a cool, dark place, especially in the summer.

* anatomy * of an herbal first aid kit * 5

Here are some basic remedies and hardware to stock in a good first aid kit. This is a big list, so feel free to tailor it to your lifestyle. For example, if you spend a lot of time outdoors, pack a poison ivy remedy and some aloe vera, and cut back on tinctures for headaches, etc.



ALLOVER HEALTH TONICS

... because some herbs are so great you'll want to take them every day.

Burdock root is used as a vegetable in Japan. It's also a great tonic for the liver, skin, bladder, and blood. The fuzzy burrs of the burdock plant are the inspiration for velcro! To use burdock, make a decoction with the root, or chew a fresh hunk of root.

It sucks that nettles are so jabby and despised, because they're actually AWESOME. Nettles are high in protein, iron, and vitamins. You can buy dried nettles and make tea, but you can also wildcraft them and eat them like spinach. To pick nettles, wear gloves, strip off young, tender leaves, and boil, steam or sauté them to get rid of those stingers!

Astragalus root is an immune system tonic that's especially important in traditional Chinese medicine. Like Echinacea, it's popular during cold + flu season. You can take astragalus on its own, but most prefer to combine it with other herbs they like, such as nettles or chamomile.

Damiana is a small Central American shrub that smells kind of like chamomile. Why do you care? Because it's an aphrodisiac! GO FOR IT!!

19 CUTS + SCRAPES

Firstly, some friendly advice: the following remedies are really for mild cuts, scrapes + irritations. If you gash yourself up really good please do not pour cayenne in it. It will suck. Anyway:

- Use the aforementioned cayenne, in powder form, as a styptic - aka a blood-clotting agent. Sprinkle a little right on the cut or scrape. It does smart a bit, though - you can also use comfrey or yarrow.

- Tea tree oil is a powerful antimicrobial agent. Dilute several drops of tea tree oil in a couple tablespoons of oil (almond or grapeseed oil is nice, but olive or vegetable oil works fine too) and apply to cuts, abrasions, fungal infections and skin irritations.

- Whip up an all-purpose healing salve for your various injuries and skin problems. Some good herbs to use for their soothing, antiseptic, and painkilling properties: comfrey, calendula, meadowsweet, goldenseal, marshmallow and horsebalm. Direct your attention to page 14 for instructions for making salves.

* NOTE: You can also make a tincture with any or all of the above herbs and apply to the skin as a wet compress with a dry bandage on top. *

ACHES & PAINS

Arnica is a lovely, yellow-bloomed member of the sunflower family that has been used for centuries to treat sprains, bruises, and muscle aches. While you should not take arnica internally, feel free to distill it into a tincture, use the flower heads in a salve, or mash them up and apply as a poultice to a sprained ankle. A quick compress for bruises and swelling can be made by soaking some clean gauze with arnica tincture and applying it to your (unbroken) skin. If you have sensitive skin or allergies, dilute the tincture with water, or use arnica infusion.

Arnica flowers also work well as part of a blend: for an excellent muscle salve, use equal parts arnica, witch hazel, and St. John's Wort. This formula is nice, because unlike a lot of commercial formulas that are supermentholated, it soothes your muscles without making you feel like your skin is on fire. But if you like that feeling, turn the page!

20 For a headier-smelling concoction with a bit of a tingle to it, combine an appropriate carrier oil (more on that in a minute) with a couple drops each of camphor, eucalyptus, rosemary, and clove bud oils. These essential oils are cooling and antiseptic; camphor and clove also have mild analgesic properties when applied topically. Shake your new massage oil well and rub into sore or tired muscles.

When you're making oils for your skin, it's important to choose an oil with the right consistency for your intended purpose, and one that's not too greasy. For massage, almond oil is always nice, and grape-seed oil is a good alternative for oilier skin. You can also try coconut oil — coconut oil is great for the skin, and is solid at room temperature, making it more portable. Just be sure it's melted when you mix in your essential oils. You can do this by placing your jar of oil in a big bowl of very hot water.

NOTE: Even though it's cheap, resist the temptation of mineral oil (baby oil). That "mineral" is petroleum, and that's what the oil feels like: gross, gloppy, and pore-clogging as all get out. Nast.



BURNS, Rashes and skin conditions

Ahem: the following remedies work great for mild burns and sunburns. If you've burnt a large area of your body, or you've got chemical or electric burns, for the love of God go to the ER. And I hope you're okay.

Anyway, so you've burned yourself: your first course of action should be to cool your burnt skin under a cold tap or in an ice bath. Immediate cold will help prevent further injury, and in those first moments it will lessen your pain a great deal. While you're sitting there, drink a glass or two of cool water. Dehydration is a serious side effect of burns and sunburns, and not a lot of people realize how quickly it can set in.

DO! NOT! PUT GREASE!

ON A BURN! That includes stuff like butter and petroleum jelly. Any oil will effectively trap heat against your skin, which is really the last thing you want. An oil barrier will also hinder air circulation and

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proper drainage, both of which are crucial to healing.

Now I am contractually obligated to talk about aloe vera. Just kidding! I will blab about aloe willingly, earnestly, joyfully. It really is the best thing to use on any type of burn. On top of that, aloe is easy to grow and process yourself. To make DIY aloe gel, puree a couple handfuls of peeled aloe leaves with 150 IU of Vitamin C powder. Vitamin C is a natural preservative like Vitamin E and jojoba oil - but without the oil. Store your gel in the fridge - it keeps longer and feels nicer that way.

Other herbs that are good for burns include calendula, comfrey, chamomile, St. John's wort and plantain. If you have the essential oils of any of these plants, mix a few drops with some aloe gel (homemade, of course).

Alternately, make a strong infusion with any or all of the above herbs, let



it cool completely, and either apply as a compress or²³ add to a cool bath. Whatever you do, don't use tinctures on burns. Tinctures are drying, and if you put them on burnt skin, it feels like you're soaking a hangnail in acetone - oh man, it hurts so bad. So don't do it!

For other skin ailments, like eczema and dermatitis, calendula and marshmallow are always good options. Either stew the herbs into a salve, use their infusions as a body splash or bath additive, or add a couple dropperfuls of tincture to some natural, unscented hand cream. Soap made with calendula petals is also nice.



Poison Ivy, Nettle, Etc.

A lot of folks swear by the inner flesh of the spotted jewelweed plant as a remedy for poison ivy. Jewelweed grows rampant all over the East Coast of North America. Look for it growing in wet environments, like creek beds. To use it, grab a stem and split it open. Rub the juicy inside of the stem over your rash.

For those of us in the West and beyond, plantain (the herb, not the fruit) is an excellent alternative. Different species of plantain grow all over the world, and many of these thrive as weeds in urban areas. To calm itching and pain associated with stings, rashes and skin

24
irritations, crush or chew fresh plantain leaf and stick the resulting cud on the affected area.

★ basic healing poultice powder

★ This is a basic formula for an all-purpose skin powder.
★ It's good for blistered feet, small cuts, and when mixed
★ with water to form a paste, is very soothing to rashes
★ and insect bites...

★ 1 part dried plantain
★ 1 part goldenseal root
★ 1 part dried marshmallow
★ 1 part dried calendula

} Grind everything into a fine powder using a coffee grinder, and keep in a plastic zip-top bag.

...and speaking of bug bites!

Tinctures of witch hazel, plantain, grindelia, comfrey, and St. John's wort are itch relievers. Add some to a bit of oil or lotion for a lone bite, or add diluted tincture (or infusion) to your bathwater. Lavender oil, diluted in a bit of almond oil, is also good for bites. And while you're in the tub, throw in a handful of baking soda, another great bite remedy.

To repel bugs, combine one, some, or all of the following essential oils in a base of vegetable oil (or equal parts vodka and water), and store in a spray bottle. Don't use more than 20 or so drops of essential oil altogether:

- ★ lavender
- ★ citronella
- ★ eucalyptus
- ★ cedarwood
- ★ lemongrass

Bite + Sting Plaster *

This is like a tiny face mask for your bug bites. It's especially good for treating stings from bees, wasps, and yellow jackets.

1 part tincture of plantain (you can also use echinacea or comfrey)

1 part pure water (distilled)

1 part kaolin or bentonite clay (an astringent clay that is usually available in bulk at co-ops and via mail order)

A few drops of lavender essential oil (max 3)

Mix the ingredients together in a small bowl. Tweak the dry-to-wet ratio until the resulting paste is smooth and tacky enough to adhere to your skin. Mound a small bit of plaster on top of the bite and let it dry, at which point you can wash or rub it off.

This plaster will keep in an airtight container, but only for a little while. Try making a batch right before a picnic/hayride/kid's birthday party or other bug-friendly event.



Bruises, Bleeding, and other "Spots Injuries"

Arnica and comfrey are the first herbs you should reach for when you've got a bruise. Start by making an infusion of one or both plants and letting it cool. Then, either use the tea as a wet compress, or freeze it in ice cube trays, wrap the ice in a tea towel and apply to the bruise (don't use a plastic bag - you want the tea to wash over the bruise as it melts). The ice method is preferred whenever the bruise is accompanied by swelling.

Nosebleeds

If your nose bleeds often, keep

on hand a bottle of yarrow tincture.

Yarrow is a natural styptic and will help stop bleeding. Fold a length of clean fabric until it fits

over the bridge of your nose, soak it in a combination of one teaspoon yarrow tincture and one cup water, and press the compress firmly over your nose.

Lean forward and let your head rest between

Please do not
eat me. I am
for external
use only.



arnica

your knees. Try to relax and breathe deeply ²⁷ through your mouth. Make another compress with the yarrow tincture and place it across the back of your neck. With your free hand apply pressure to your upper lip.

PARASITES

If you've ever had head lice, you know that the treatment is this vile, burning shampoo that is just as awful as having lice. Essential oil of thyme is an effective herbal alternative because thyme is very high in phenol, an anti-septic and anti-parasitic chemical compound that's also present in other plants, like tea tree. To treat lice, add four drops of thyme oil in an ounce or two of olive oil and rub it in to your scalp.

Put on a shower cap and relax for a half hour. Wash your hair with soap or shampoo and then comb the nits (tiny lice eggs) out with a very fine-toothed nit comb. Make sure you get every last nit - they look like little white dots clinging to your hair shaft. In the meantime, wash your sheets in the hottest water you can procure, and add some thyme oil to your laundry soap. Oh yeah - you can treat crabs this way too.



*CAUTION: IF YOU ARE PREGNANT, DON'T USE THYME - JUST SHAVE YOUR HEAD

the fungus among us

Fungal infections can occur in several different areas of the body: athlete's foot, jock itch, ringworm, yeast infections and thrush are all types of fungal infection. They all suck pretty bad. Fortunately, most are quite easy to treat.

The first thing you should do to fight off a fungus is to increase the friendly bacteria in your body by taking some probiotics. These are found naturally in cultured products like yogurt and kefir (look for "active" or "live cultures" on the label), but you can find extracted probiotics like acidophilus in pill form too. For yeast infections, use yogurt (*plain* yogurt) topically in and around your genitals - use a little spoon or a tampon applicator to get it in there. Wear a pad afterwards while the yogurt's leaking out. Another remedy is to wrap a peeled clove of garlic in some cheesecloth, dip it in olive oil and insert it into the vagina. You can tie a string around it for easy removal. Change the clove 3 times a day. If you'd rather avoid putting stuff inside you, or if you don't have a vagina, eating lots of yogurt and garlic can also be effective.

External infections, like athlete's foot, can be treated with antifungal herbs like tea tree oil. Here's a simple ointment that you

can use all over:

- 1 cup olive oil
- big handful calendula petals
- 10 drops tea tree oil



Infuse the calendula in the oil for a few days, then add the tea tree oil. Keep the ointment in a tight-lidded jar. Use as a massage oil on the infected area a couple times a day. If you have dandruff or a scalp infection, rub the ointment into your scalp, pull on a kerchief or shower cap, and sleep on it. Wash the oil out in the morning.

Antiseptic + Antifungal Soap

Use this on your hair and body

- 8 oz liquid castile soap, unscented
- 10 drops tea tree oil
- 5 drops lavender essential oil
- 5 drops eucalyptus essential oil

Add the oils to the soap and mix well. Store in a squeeze bottle.

More tricks:

- For especially itchy infections, like yeast infections, try soaking in a bath with a few handfuls of baking soda tossed in.
- Paint gentian violet tincture on any fungal infection. For yeast, soak a tampon in the solution. Make sure to wear a pad, because the stuff is purple.
- If your feet burn and itch, get someone to rub them with aloe vera gel with a couple drops of tea tree oil added in.

GUT PROBLEMS

Digestive issues can be either acute or chronic, and they are always pretty sucky. Fortunately, there are herbs out there that can work as digestive tonics that strengthen your GI tract, which makes it easier for you to manage a chronic condition. Among these, the most accessible is chamomile. Awesome, right? Because you already like chamomile!

A strong cup of chamomile tea, taken three times a day, can tone a weak set of guts over time. Soothing.

For digestive complaints, I always prefer teas to tinctures, which are alcohol-based and can irritate an uppity stomach. If you've got the runs, check out raspberry leaf, blackberry leaf, slippery elm, and cranesbill. Let your herbs steep 10-30 minutes and drink a few cups, or until you're feeling better. In the meantime, make yourself a bowl of cooked white rice, avoid any foods that you know irritate your stomach, and make sure to drink lots of water to counteract dehydration.

If you just barely ate something really gross and a cold dread is creeping up your esophagus, reach for some charcoal tablets — tablets, not briquettes!

UGH

The charcoal is incredibly absorbent and will help to soak up your warm mayonnaise or whatever the hell that was. Follow the directions on the bottle, or take one or two tablets every four hours.

For nausea + motion

BARR!

sickness, try ginger, everyone's favorite rhizome. You can buy ginger powdered in tablets, but candied ginger is much tastier. You can buy it in bulk at most co-ops, health food stores, and Asian groceries.

Herbal teas are also helpful if you're backed up — try yellow dock, milk thistle, senna, and cascara sagrada. A cup of yerba maté tea, taken on an empty stomach, can also speed things up.* In between cups of tea, stick to a diet high in fiber, and try to move around a little. And yes, prunes will help you — a lot.

*Avoid this if you're sensitive to caffeine, or have ulcers

PLUMMMM



There are so many herbs that fight colds, I'm just going to list them:

- Echinacea
 - Boneset
 - Goldenseal
 - Garlic
 - Usnea
- Antimicrobials, herbs that work to kill infections in the body and support the immune system
- Valerian
 - Cramp Bark
 - Passionflower
- Antispasmodics, for cramps and body aches
- Meadowsweet
 - Slippery Elm
 - Raspberry Leaf
- Help reduce mucus secretions
- Elder Flower
 - Peppermint
 - Yarrow
- Herbs that induce sweating, for reducing fevers
- Comfrey
 - Coltsfoot
 - Mullein
 - Marshmallow
 - Licorice
- Expectorants, to help you cough it up
- Catnip
 - Hops
- mild sedatives, for better rest

*I recommend making a big thermosful of tea using a few of these herbs. Keep it next to your bed so you don't have to keep getting up to make tea. This also helps you to stay hydrated. Here's a good general cold/flu formula:

Cold & Flu Tea

$\frac{1}{4}$ c each:

Elder flowers

Licorice

Boneset

$\frac{1}{8}$ c Meadowsweet

$\frac{1}{8}$ c Catnip

2 T each:

Peppermint

Cramp Bark

Store in an airtight jar. Use one table-spoon herbs for every cup of water.



Mullein Ear Oil

Mullein is an anti-inflammatory, and a traditional herb for earaches.

- Combine in a small jar a handful of dried mullein flowers and a clove of sliced garlic (optional). Cover the herbs with olive oil, cap the jar, and let it sit in a sunny spot for a few days. Strain out the flowers and transfer the oil to a dropper bottle. Use 2-3 drops in your achey ear once or twice a day. Warm it up first if you like—just stick it in your pocket for a minute.

Sinus Wash

One of the simplest ways to treat congestion is to irrigate your sinuses with a saline solution. Use a neti pot or a cup to pour this mixture gently into one nostril and let it drip out the other. Refill the pot and repeat on the other side, and then gently blow your nose. Use $\frac{1}{8}$ t sea salt to every cup of warm water, and add a pinch of baking soda.



Herbal Eye Wash

Eyebright. Guess what it does!

Make an infusion with one cup of water plus $\frac{1}{2}$ teaspoon each:

eyebright
goldenseal root
red raspberry leaf

Strain it very well and use it with an eye cup or shot glass to help soothe tired eyes or fight eye infections.



mouth & tooth issues



Oil of clove is an important ingredient in a lot of dental products, including crowns (if you've ever had a root canal: oil of clove is why your crown sometimes smells improbably like perfume). Clove oil has strong antiseptic and painkilling properties, and can be found in most drugstores, in the pharmacy section next to the other "olde tyme apothecary" stuff. Put a drop on a cotton swab or bit of dental floss, and apply to your aching tooth, making sure not to swallow any. ☺ ☺ ☺

Thyme is another herb with a stellar reputation for killin' germs. You can use a strong tea or diluted thyme tincture as a mouth rinse to clean mouth wounds and lessen your chances of infection.

If you are completely bereft of all healing plants, make a solution of warm water and sea salt. Sea salt is naturally astringent and is perfect for gently cleansing tissue that's healing from trauma. Sea salt solution works to temporarily soothe sore throats, also.



PMS

+ MENSTRUAL
ISSUES!

I've always had the kind of blitzkrieg PMS that seems to assault every organ in my body at the same time. Maybe you also have this problem.

To counteract a number of different symptoms, make a tea blend with the following and drink 2-3 cups a day:

2 T dandelion root

diuretic to help swelling and/or bloating. Also full of iron + nutrients

2 T chamomile

2 T lemon balm

calming, for emotional support

2 t raspberry leaf

2 t cramp bark

antispasmodics to soothe cramps

2 t fresh ginger

aids digestion and is tasty

Valerian is also excellent for stopping cramps—since it's also a sedative, it's best used to treat nighttime cramps, or cramps you have when you know you aren't going to do anything productive. You can also take cramp bark tincture, which is quite effective.

If you're bloated and uncomfortable, make sure to drink lots of water and herbal tea. If you can find young dandelion greens to eat, they are super nutritious and will help flush out retained fluid. Avoid coffee—even though it makes you pee, it doesn't help with water retention. Ain't that a kick in the ass?

36 If you have ongoing menstrual troubles like erratic periods, painful periods or especially heavy bleeding, try drinking red raspberry leaf tea as a uterine tonic. Drink a cup or two a day, and add an extra cup when you're menstruating, to help with cramps.



Emmenagogues are herbs that stimulate menstruation —which, by the way, is different than inducing miscarriage or abortion.* *Emmenagogues* are what you use if your period is just being pokey because you're stressed, overworked, underweight, or you have a hormonal or metabolic imbalance.

Parsley is a well-known *emmenagogue*, and is super-nutritious and tasty. Take parsley as an infusion, 2-3 times a day, or eat fresh parsley salads, until your period comes. Other *emmenagogues* include ginger, yarrow, sage, rosemary, blue cohosh root, and motherwort. You can take these herbs as infusions, 1-3 times a day, for up to a week. Don't use these if you're pregnant.

If your flow is super heavy, try tinctures of yarrow, vitex berry, and red raspberry leaf. Up your intake of iron until you feel better.

* NOTE: I made an executive decision not to cover herbal contraception + abortion in this book — not because I have anything against it, but because I have no experience with it at all. If you need resources on this, check out the amazing women's health zines on page 123.

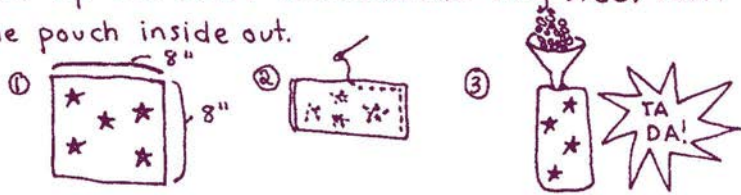


Headaches get their own section in this chapter because they are such vicious, elusive little buggers. As anyone who has dealt with chronic headaches knows, painkillers - even herbal ones - are often not enough to solve the problem, because your headache may very well be a mere symptom of a larger problem, like:

- bacterial infection
- PMS
- allergies
- stress
- poor vision
- and more!

But I'm not trying to freak you out. If one of the herbal pain relief tinctures on page 40 doesn't work for you, you're most likely stressed out or dehydrated. If you find yourself in this situation often, try some basic aromatherapy. The essential oils of lavender, peppermint, and chamomile are well-known stress relievers. If you keep a bottle of this blend around, you'll find it useful in all sorts of formulas. Try mixing a few drops with unscented soap or lotion and massage your neck and temples. Or just keep it around and inhale the scent when you're feeling stressed.

You can also use your new blend in an herbal eye pillow. Cut a square of soft fabric into an 8x8 swatch and fold it in half with the right sides facing in. Using a tight stitch, sew up one short side and one long side. Turn the pouch inside out.



Meanwhile, mix together $\frac{1}{2}$ - $\frac{3}{4}$ c rice or flax seeds, $\frac{1}{4}$ c lavender flowers, and a few drops of essential oil (the lavender/chamomile/mint mix, or whatever you prefer). Pour this stuff into the eye pouch and sew up the remaining side. Lay back and place this pillow over your eyes whenever you're suffering from headaches, insomnia, anxiety, or hangover.

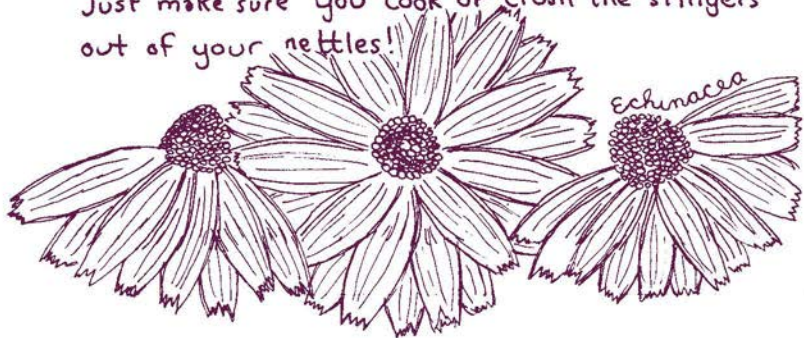
If your headache is accompanied by an uncomfortable smothery feeling, you may have a sinus infection. These are usually treated with antibiotics. Whether or not you decide to take that route, here are some ways to make yourself more comfortable:

- Whenever you can, spend some time under a warm, steamy shower. This loosens mucus and makes blowing your nose easier.

- To make DIY mentholated rub, sans menthol, make a salve with eucalyptus, peppermint, basil, fennel, and some camphor if you can get it. Rub some on your chest and throat before you go to bed to ease congestion as you sleep.

- You can also use those same herbs, in essential oil form, to make bath salts. Add a drop or two of each oil to a cup of sea salt or epsom salts. Stir the salts into a steamy bath. Store in an airtight container if you're not using them right away.

- The best way to fight any sort of infection is to avoid excess stress on body systems, and to try and strengthen your immune system as much as you can. Immunity tonics can include herbs like echinacea, goldenseal, nettles and parsley. The latter two of these are full of vitamins & minerals and make a great tea (or salad) in their own right. Just make sure you cook or crush the stingers out of your nettles!



And now...

Natural Pain Relief! Thank God!

Sometimes you just feel crappy. Your back hurts or your head hurts or your uterus hurts and deep breathing alone is not cutting it. For those special moments, the following herbs can help:

White Willow Bark contains *salicylic acid*, which in 1853 was dismantled by French chemists and synthesized into what we know as aspirin. But folks were using the bark for centuries before that, as a painkiller, fever reducer, and anti-inflammatory. White willow is best taken as a tea or a tincture, and should not be taken long term, as it can irritate your stomach like aspirin.

*Note: As with aspirin, white willow bark should not be given to young children.

Wild Lettuce is also called opium lettuce - guess why! Wild lettuce is most often used as an analgesic, sleep aid and sedative. Take as a tea or tincture.

Meadowsweet, like willow, contains salicylic acid, and unlike willow, it actually tastes pleasant. Make a tea out of the flowers, or chew a small hunk of peeled root.

Other helpful herbs include red raspberry, slippery elm, and valerian. I'll talk more about these in other sections.

depression and anxiety ⁴¹

And now we come to what will most likely be the most earnest page of this book. Dealing with mental health issues in a holistic way is, I think, incredibly effective and heartening. But for the record, let me state that I am not in any way against using pharmaceuticals to treat depression. I know a lot of people find them creepy, oppressive, and over-prescribed. While I think that some of these criticisms are quite valid, I would also wager that few of the critics themselves have had to live with debilitating depression. My point is this: get help any way you can. If you try herbs and they don't work for your brain, get the help that is right for you. It doesn't make you weak and it doesn't mean you're selling out. Moving on...



St John's Wort is far and away the most popular herb for depression and/or anxiety. The SJW is most effective for mild to moderate depression, so it's perfect for people who want to manage depression but don't feel they need prescription meds. Try taking 15-30 drops of St John's Wort tincture in a cup of warm water, juice or tea 1-3 times each day.

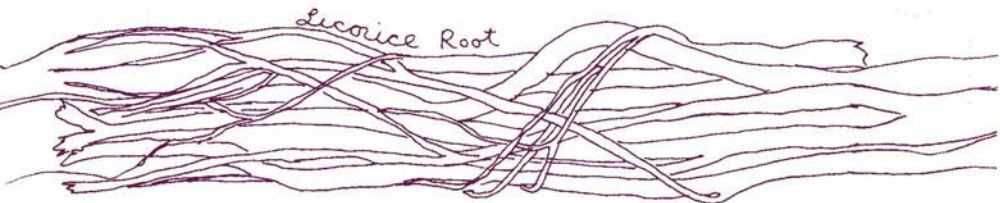
NOTE : This is important! If you take...

- birth control pills.....
- anti-depressants (prescription).....
- anti-coagulant meds (blood thinners).....
- Certain HIV/AIDS meds.....

... do not take St. John's Wort! Or use a condom! Compounds in SJW decrease the effectiveness of these medications. SJW can also make your skin more sensitive to sunlight, so wear sunscreen if you're taking it on a regular basis.

Other herbs that are good for depression include ginseng, licorice root, lemon balm and chamomile. Ginseng is good for foggy minds and lethargy, and is best used by folks whose depression does not include a lot of anxiety or restlessness. Licorice root is an all-over glandular tonic and can help with hypothyroidic depression. Lemon balm and chamomile are both very calming, comforting herbs and are nice to take as a tea even if you're not depressed or anxious.

Licorice Root



Before I end this section I wanted to mention two very effective and famous herbal sedatives: valerian root and kava root. Both of these are excellent soothers in times of stress or trauma.

Valerian is especially useful for insomnia* and menstrual cramps. The root is widely available and it's *seriously effective* - don't drive, bike, or operate a forklift after you take it. Valerian smells quite disgusting, so you will probably want to put your tincture in some juice.

FUNFACT Rats, cats and horses also respond to the effects of valerian.

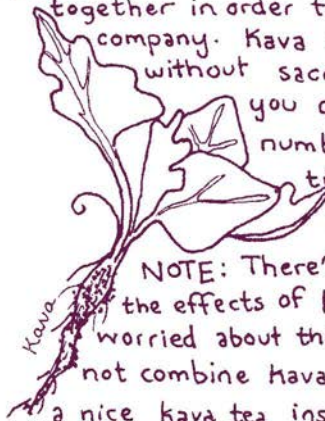


Kava is a tropical root native to the Western Pacific. In a lot of cultures, kava holds a cultural importance not unlike that of alcohol or tea in other parts of the world; people drink kava beverages

together in order to relax and enjoy each other's company. Kava is great because it relaxes you without sacrificing your mental clarity, so you can actually function. (It also numbs your mouth and throat a tiny bit, just to let you know.)

Kava is available via mail order.

NOTE: There's been some controversy as to the effects of kava on the liver. If you are worried about this, practice moderation and do not combine kava with any sort of alcohol. Try a nice kava tea instead.





chapter 2

Antitoxic
Cleaning

+
Body

Care

Even if you really hate cleaning, I think most people will agree that having a clean and comfortable living space is lovely. Right? However, if TV and print ads are any indication, a lot of us have some seriously messed up ideas about dirt and cleanliness. We seem to think that in order to keep flesh-eating germs from devouring our families we need to bomb our houses and scrub our skins with anti-septic cleansers, the use of which mysteriously correlates with rising rates of chemical sensitivities and antibiotic-resistant supergerms. Plenty of folks are opting for the many "green" products popping up like weeds, but most of this stuff is too expensive to be accessible, or it's made by the same companies that make the mainstream products - so, even though you're trying not to, you're still giving them your money. It makes you wonder, are we really keeping ourselves healthy this way? Why on earth should we spend so much money just to make our lives comfortable?

Fortunately, there is a way to clean your home and your self without donning a fumigation suit: make your own cleaners! It's quite easy, and you'll be taking something practical and imbuing it with your own resourcefulness and creativity. That in itself is quite fulfilling.

46
Here are some more reasons to make your own cleaners:

- Sometimes germs are dangerous. But you know what's always dangerous? Neurotoxin! Chemicals like chlorine bleach, ammonia, and hydrochloric acid may be effective cleaning agents, but they are harmful to the nervous and respiratory systems, especially over long periods of exposure.

- For the price of a couple bottles of commercial product, you can keep yourself in DIY cleaners and body care for months + months. Plus, every ingredient in this chapter has tons of other uses.

- Homemade products are much gentler to folks who have sensitive skin or chemical sensitivities. They're also safer for kids and animals.

- The recipes in this book employ essential oils, herbs, and herbal infusions for their scents and chemical properties. So if you want your kitchen to smell like a lemon, or a forest, or a lemon forest, *it actually will!*

- Ingredients like castile soap and vinegar are gentle on the earth. Many soaps and detergents and cosmetics are made with byproducts of the oil industry, tested on animals, and then sold in a ridiculous amount of packaging. If you DIY, you can bypass this grossness and make biodegradable, ethical, and responsible products that you'll be proud to use!

basic ingredients

for cleanin'

The following is a list of basic tools and ingredients that you'll need to make the recipes in this chapter. All of them should be available in any, well-stocked grocery store.

- vinegar (use cheap, white distilled vinegar unless specified) - cleanser, deodorizer, grease-cutter
- baking soda - deodorizer, mild abrasive
- ★ • borax (aka $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$) - natural mineral disinfectant and cleanser
 - salt - disinfectant, astringent, abrasive
 - lemon juice - grease-cutter, cleanser, deodorizer
- ★ • washing soda (aka sodium carbonate) - strips grease and wax, deodorizes
 - castile soap - see my love letter on the next page
 - essential oils - serve myriad purposes
 - dried herbs
 - cornstarch - absorbs oil, thickener
 - hydrogen peroxide - disinfectant + non-chlorine bleach
 - Vitamin C + aspirin - mild acids + exfoliants
 - Canola oil - wood conditioner

★ = wear gloves when handling

In addition to these basic ingredients, you'll need some hardware. It's a good idea to take a thrifting trip and get these things even if you already have them, so you'll have some tools exclusively for DIY non-food purposes. If this is out of your budget, clean everything*very* well. Here's what you need:

- ∅ measuring cups and spoons
- ∅ at least one funnel
- ∅ a mixing utensil (use non-reactive metal or plastic)
- ∅ cheesecloth, muslin, or some old nylons
 - for straining stuff
- ∅ a saucepan w/ a lid - enamel, glass or steel
- ∅ an old blender or egg beater
- ∅ latex gloves (to use when blending ingredients, if you have sensitive skin or are pregnant)



- ∅ a buttload of containers, like:
 - spray bottles
 - squirt bottles
 - jugs
 - plastic tubs
 - squeeze bottles
 - dark glass bottles
 - pickle jars
 - mason jars
 - ...and so on.

Castile

The name "castile soap" originally referred to a type of Spanish soap made from the area's native olive oil. Nowadays the name is given to any soap that is made with vegetable fats (usually hemp, palm, or olive oils) rather than animal fats like tallow. The result is soap in its gentlest, most basic form, which makes it ideal for cleaning pretty much everything. Not only is castile soap extremely versatile, it's cruelty-free, inexpensive, widely available, and in liquid form it's a great base for other herbal ingredients. You can usually find it under a couple different brand names at supermarkets, and in bulk at co-ops + health food stores.

I'm not going to provide a recipe for soap in this book - at least, not from-scratch soap. This chapter is about nontoxic cleaning, and all soaps are made with lye, a caustic alkaline that's about as toxic as you can get. I just didn't feel that it was a fitting recipe for this book. However, making your own soap is super fun and I urge you to take a class or check out a book on the subject, and learn to do it safely.

Soap!



Almost All-Purpose Spray Cleaner

1 t liquid castile soap 1 t borax
 2 T white vinegar 2 c hot water
 ¼ t each eucalyptus and lavender oil
 3 drops tea tree oil

• Mix all ingredients together in a spray bottle. You can use this on anything besides glass - spray it on, scrub, and rinse off with a clean, damp cloth.

Disinfecting Soft Soap

5 c grated soap (castile) ½ c baking soda
 6 c hot peppermint or lemon peel tea
 1 t eucalyptus essential oil 1 t borax

• Combine the soap and tea in a 3 quart stainless steel saucepan. Simmer 15 minutes on low heat, stirring occasionally. Add the remaining ingredients, one at a time. Stir well and, using a funnel, pour into a jug or squirt bottle. Shake well before using and apply with a sponge or brush.

Windows

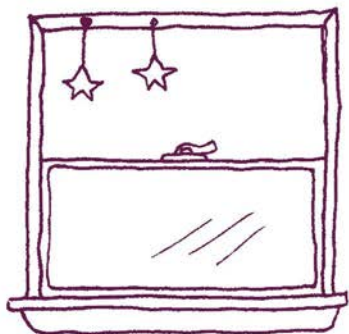


Basic Window Cleaner

- 3 t liquid soap 1/2 t baking soda
3/4 c white vinegar 4-8 drops lemon oil

Combine all ingredients in a spray bottle. Shake well before using.

Mirror Cleaner



- 1 1/2 c white vinegar
1/2 c water
4-8 drops orange, lemon,
or grapefruit essential oil

Combine all ingredients in a spray bottle. Shake well before using.

For both of these cleaners, just spray on + wipe off. But don't use paper towels! They're wasteful and they suck. Wipe off the cleaner with a soft, lint-free cloth or crumpled newspapers instead.



(...Wood, and Upholstery...)

Wall Cleaner

1 c vinegar
1 gallon water

• Combine in a bucket & apply with a sponge.

*use this to shine + remove dust. For grimy walls, use Lemon Floor Cleaner on page 53

Gentle Wood Cleanser

$\frac{1}{2}$ c canola oil
 $\frac{1}{4}$ c liquid castile soap
 $\frac{1}{4}$ c water

• Combine and shake well before using. Apply with a rag, finish with a dry rag, and follow with polish.

Fabric Cleaner

1 c water
 $\frac{1}{8}$ c liquid castile soap
 $\frac{1}{2}$ t baking soda
1 T vinegar

• Combine in a spray bottle. Spray onto fabric, scrub with a sponge, and rinse with a little clean water. Blot with a clean rag.



...of all varieties...

• WOOD FLOOR CLEANER •

1/2 c water 1/2 c vinegar 20 drops peppermint oil

- Combine all ingredients in a spray bottle. Use sparingly, spraying and dry-mopping as you go. Work on small sections of floor at a time. Give it another swipe with a dry mop to make the wood nice and shiny.

• LEMON FLOOR CLEANER •

1 c liquid castile soap

1/4 c lemon juice

10 drops tea tree essential oil

6 c warm water

- Mix all ingredients and store in a plastic jug.

• PINE FLOOR CLEANER •

1 c liquid castile

1/2 c pine oil

6 c warm water

- Mix all ingredients and store in a plastic jug.

for vinyl and tile

• CARPET CLEANER •

3 c water 3/4 c liquid castile 2-3 drops peppermint oil

- Mix all ingredients in a blender, until it is very foamy. Rub the foam into your carpet with a damp sponge, let dry and then vacuum.

• DRY METHOD FOR CARPET •

- Sprinkle the carpet with equal parts baking soda and borax, and then vacuum.

Dishes, Drains, & Sinks

Liquid Dish Soap - not for the dishwasher!

Add up to 30 drops essential oil of your choice to 20 ounces liquid castile soap. I recommend citrus oils or lemon verbena for any sort of kitchen cleaner. If you use a soap that's already scented (like Dr. Bronner's), you can combine scents.

Sink Volcano! Sink Cleanser

$\frac{1}{4}$ c baking soda $\frac{1}{2}$ c vinegar

Apply to a wet sink, scrub and rinse well.

DIY Drain Opener

Pour 1c each salt + baking soda, plus $\frac{1}{2}$ c vinegar down the drain. Let it sit for 15 minutes, and then flush the drain with 2-3 quarts of boiling water.

★ ★ Add $\frac{1}{2}$ c vinegar or lemon juice to your dishwasher to help cut grease. ★

Toilets & tubs

Soft Scrub

1 c baking soda 1/4 c liquid castile
3-5 drops tea tree oil 2 aspirins, powdered

Mix all ingredients together + add enough water to make a paste. Keep in a shampoo bottle. To use, apply with a sponge, scrub + rinse thoroughly.

Toilet Cleaner

2 c water 1/4 c liquid castile
1 T tea tree oil or grapefruit essential oil

Combine everything in a spray bottle.

Spray on ⇒ wipe off!

Bowl Cleaner - with ~~SKINK~~!

1/2 c baking soda

1/4 c vinegar

10 drops tea tree oil

Combine everything, pour into the toilet + scrub away.

Note: since this stuff explodes a little, each recipe = 1 cleaning.

★ To deodorize ★
curiously gross-smelling
drains, sprinkle a
handful of baking soda
down the drain
when it's dry
★



All-Purpose Laundry Soap

This is a low-lathering, unscented detergent you can use in a washing machine. If you want to scent it, you can dry and pulverize some scented castile soap (like Dr. Bronner's) to use in the recipe, or add a few drops of your favorite essential oil.

This recipe makes enough for three loads, but is very easily doubled or tripled.

$\frac{1}{2}$ cup baking soda

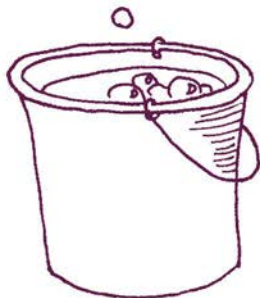
$\frac{1}{2}$ cup powdered castile soap

$\frac{1}{4}$ cup washing soda



$\frac{1}{4}$ cup borax

*NOTE: In order for the soap powder to dissolve, use warm or hot water in your machine. o

Mix ingredients well, add essential oils if you're using them, and stir again to break up any clumps. Use $\frac{1}{2}$ cup per load.



Fabric Softener Pouch

Technically this is a sachet—but I don't like the word "sachet." I like the word "**pouch**." First, make a pouch out of tightly woven fabric by folding a rectangle of cloth in half and sewing up the sides: ①  ②  BAM!
 Make a couple of these and fill each with a couple spoonfuls of this mixture:

$\frac{1}{2}$ c baking soda

1 T arrowroot powder

1 T rice flour or cornstarch

1-3 drops essential oil (your choice)

Tie up the pouch tightly and pop it in the dryer with your clothes. Make a couple with different scents—lavender is nice for bedsheets and lemon verbena for clothing. Refill the pouch when the scent fades.

*A *sportive alternative*: let a couple of (clean) tennis balls bounce around with your laundry, to create air pockets and hence, fluffy freshness.

Homemade Bleach

1 c hydrogen peroxide

3 T lemon juice

15 c water

Mix all ingredients together + keep in a large plastic bottle.

Spray Starch

3 T plus 1 t cornstarch

4 cups warm water

Mix really well so no lumps remain, and keep in a spray bottle.



If you have a piece of clothing that bleeds or dyes your skin, try handwashing it with a few glugs of vinegar in the washwater.

Dry cleaning is kind of a scam. For most clothes that "require" dry cleaning, gentle handwashing will suffice. Use All Purpose Laundry Soap or baby shampoo and dry it flat on a clean towel. Wool fibers like acid, so if you're washing wool, use castile and add vinegar to the soapy water.

Stain Removers

* rub on your chosen antidote + launder as usual

★ Washing Soda is one of the best stain removers around. Make a paste with a little water and use it on:

- wine
- berries
- grease stains
- blood and other proteins
- coffee
- tea
- most other food stains
- sweat
- urine

★ Borax, like washing soda, is alkaline and thus dissolves acidic and protein-based stains, like the ones above. It also works really well on mildew.

If you have hard water, use borax instead of washing soda, which will leave a chalky residue on fabric.

★ Vegetable oil is good for removing gummy labels and stickers.

★ Vinegar is acidic and removes alkalines like:

- grass
- rust
- paint
- ink

★ IF you can't treat a stain right away, at least give it a rinse. Use only cold water, especially with proteins like blood. Heat will only cook the proteins and set the stain. Ew.

★ Glycerin is very sticky and slippery and is best used on oily or waxy stains, like lipstick.

★ Club soda will remove most of the stains listed under "washing soda." You can spray it on, dampen a towel with it, or just pour it on. It's a real amiable little product.

★ Once and for all: gum needs to be frozen and then pulled or chipped off. Smearing more crap on it does not work. Ok!

pest control

The key to keeping mice + bugs out of your space is to understand how they get in and why they want to be there. Once you know that, a bit of prevention and - sorry - scrupulous cleaning will keep them from hanging around.

- Your house is full of free food, so cover up your leftovers (and your kitchen's compost bin), wipe your counters, and take your trash + recycling out often. Don't leave food lying around, especially at night. The cleaner your place is, the less likely bugs are to inhabit it.

- Consider calling a truce with non-poisonous house spiders. They eat lots of flying insects, and contrary to popular belief, they hardly ever bite people.



- Keep potted plants or bundles of dried herbs around your kitchen, or wherever you're having an infestation. I keep most of my herbs in my kitchen and they've done a rad job of protecting my food against fruit flies. Bugs and mice especially hate: peppermint, oregano, basil, garlic, rosemary, lavender, lemon balm, hot peppers, and citrus peels.



- For nasty fruit fly infestations, make a ⁶⁰¹ trap: pour $\frac{1}{2}$ inch of old wine in a jar, cover the mouth of the jar with plastic, and poke a few holes in the top. The flies'll be able to get in, and get drunk, but they won't come out.

Pest Repellent Powder

For flies, ticks, fleas, mosquitoes, roaches, ants, and mice - this just repels pests, it doesn't kill them.

2 handfuls dried peppermint

A healthy pinch each: garlic powder, cayenne, lavender flowers, lemon peel, and dried basil

Grind everything very finely and store in an airtight container. You can mix the herbs with some salt, if you like. Sprinkle the powder any place bugs like to hang out: in back of your cupboards, under your fridge/oven, around windows + doors, along baseboards, etc.

BIG GUNS! (If you need them)

- Borax is effective for killing bugs. Mix some with sugar and sprinkle it across doorways and along baseboards. Do not use this if you have kids or pets.

- You can spray lines of ants with diluted peppermint castile soap. The soap will kill the ants and erase the pheromone trail so other ants won't be able to follow.

- Make fly traps by painting strips of heavy paper with corn syrup or honey. Let it dry until it's tacky and then hang them up.

Random Messes

and how to destroy them

Lemon Rub For Copper + Brass

- Dip half a fresh lemon in salt and rub it over tarnished metal. Wash with soapy water, rinse and buff dry.

Oven Cleaner

- Scrub a cold oven with equal parts vinegar + water. If something spills in your oven, pour salt on the spill while the oven is still warm, and sweep out the salt with a brush when everything's cool.

Killing the Fridge Demon

- Clean your refrigerator's walls, shelves and drawers with a solution of $\frac{1}{2}$ c water, 3 T baking soda, and 6 drops essential oil of your choice.

- To absorb weird smells, leave a small, open box of baking soda in a corner of the fridge, Alternately, you can use a small bowl of

coffee grounds (unused coffee grounds, thanks).

These two tricks work well for musty freezers, also.



Gross Food Tips

- If your cooking pot is crusty with burnt stuff, scrub it with baking soda while it's still hot. Method 2: Use the pot to boil some water with a couple spoonfuls of baking soda thrown in. Let it sit until the food can be scraped off.
- For really greasy dishes, add $\frac{1}{2}$ c lemon juice or vinegar to your dishwasher.



Appliance Cleaner

- Mix together 2 parts each vinegar + lemon juice and 1 part water. Let sit on stains and scrub with a sponge. Don't leave your appliances plugged in when you clean them!

Cleaning a Coffeemaker

- Fill the coffee maker's water reservoir $\frac{1}{4}$ full with white vinegar, and add water until totally full. Turn the little guy on and let the cleaner drip into the pot. Turn the maker off and let it cool. Pour the vinegar-water solution back into the reservoir and let it cycle through again. Repeat once more. Pour out the vinegar solution and replace with clean water. Let that cycle through twice, and then wash both the coffee pot and the grounds basket in warm, soapy water.





Choosing Herbs for Your Skin & Hair

Here's a convenient table for when you're choosing oils or herbs to add to your formulations. Notice that rose, lavender, and licorice are excellent choices in any situation.

Herb/Oil	oily	dry	sensi- tive	Anti- bacterial
Aloe Vera		★		
Birch				★
Calendula		★	★	
Chamomile		★	★	
Cinnamon				★
Comfrey		★	★	
Eucalyptus				★
Horsetail	★	★		
Lavender	★	★	★	★
Lemon Balm	★			
Lemon Verbena	★			
Lemongrass				★
Licorice	★	★	★	
Mint	★	★		
Nettle		★		
Orange Blossom		★		
Rose	★	★	★	★
Rosemary	★			★
Sage	★			
St. John's Wort		★		
Sweet Orange				★
Tea Tree	★			★
Thyme				★
Witch Hazel	★			



Remember that bottle of castile soap you used to clean your whole living space? Pour some on your head! Castile soap is so basic that it can clean pretty much any part of you besides your eyeballs. To make a gentle soap for your hair and skin, mix 12 oz. of unscented castile soap with up to 30 drops of an essential oil or oils suitable for your hair and skin type. Cap the bottle, give it a shake, and that's it!

... Except, not really. You see, regular shampoos do not contain soap, they contain detergents like the dreaded  sodium laureth sulfate , or SLS. For a while people thought SLS caused cancer. For the most part that idea has been debunked, but it is still true that SLS is rather irritating to skin.

Detergents like SLS are cheap, very foamy, and very effective, because they strip oil and dirt from surfaces (your dishes, your clothes, or your face) and then rinse clean. Castile soap, on the other hand, does not strip oils quite as well, and is much gentler on your skin. The downside to all this loving gentleness is that castile can leave a bit of residue on your hair.

66
A lot of folks don't mind this, or even prefer it, but if you want that squeaky-clean feeling, you'll have to cut the residue with a mild acid. Try rinsing your hair with a coffeemug-full of diluted lemon juice or vinegar after you shampoo. Make sure to rinse again with clean water if you don't want to smell like a gherkin.

Soapwort Shampoo



Soapwort is a funny little shrub that contains natural saponins (soap-like chemicals) which cause the flesh of the plant to lather when agitated. A decoction of soapwort root (or its tropical neighbor, soap bark) can be used as a gentle cleanser for hair and skin. The nettles in this recipe add shine + body to hair, and the lemon verbena smells nice.

*NOTE: this will not be as foamy as regular shampoo, so don't worry if you can't work up a huge lather with this stuff.

◦ 2 c distilled water

◦ 1 1/2 T dried, chopped soapwort root

◦ 1 t dried (2 t fresh) lemon verbena

◦ 1 t dried nettles

Optional: a couple drops of essential oil suitable for your hair type



1. Get yourself a big jar with a lid, put the soapwort root and water inside, and let it soak overnight. (D)

2. In the morning, pour the whole mess into a saucepan and bring it to a boil. Reduce the heat to low, cover, and let simmer for 20 minutes. (D)

3. Remove the pan from the heat and add nettles and lemon verbena. Mix well and allow to cool completely. (D)

(D) 4. Line a funnel with cheesecloth (several layers), muslin, or the foot from an old pair of nylons. Place the spout of the funnel in a squirt or pump bottle and decant your new shampoo. Squeeze the solids to get out the last bit of liquid before tossing. (D) (D)

5. If you're using essential oils, add them now. Cap the bottle and give it a good shake. (D)

(D) ★ This shampoo keeps for up to 10 days on the shelf, a day or two longer in the fridge. You can take advantage of this and make a really nice shampoo to use in the summer. Replace the nettles in the recipe with some nice invigorating rosemary, and add a couple drops of tea tree or peppermint essential oil at the end. Keep it in the fridge and use it any time you need a cheap (and homemade!) thrill.

Baking Soda Shampoo

I don't think this even counts as a recipe. Basically: try using baking soda instead of shampoo. Just rub a couple teaspoons of baking soda into the roots of your hair while it's wet, and rinse off in the shower. The soda will clean your hair and dissolve any product build-up. If you really like using liquid shampoo, you might also try mixing a teaspoon each of baking soda and shampoo and using that to wash your hair. The combination of the two is awesome for dissolving serious product build-up.



Homemade Conditioners

→ aka *Godsend or Greasehead?*

I have tried many homemade conditioners in my time, including olive oil, egg yolks, mayo, mashed bananas, and avocado. And I always end up with stubborn chunks of fruit, cooked eggs, or ungodly amounts of grease in my hair. I'm not saying that egg yolks don't work, just that I personally always screw them up; because of this, I don't really feel comfortable suggesting that you put that stuff on your head. What I am



going to suggest is that you may not need a conditioner... *at all!* Scandal! 69

But think about it: commercial shampoos are designed to strip the scalp of the oil it naturally produces, and conditioners are supposed to replace those oils with fruity, pearly goodness. But if you switch your shampoo with a head soap that doesn't strip those oils, why would you need all that extra moisturizer on your head? Makes sense, right? Of course, if you have coarse, thick or dry hair, or you wash your hair often, you'll probably want a conditioner at least some of the time. And here comes one right now!

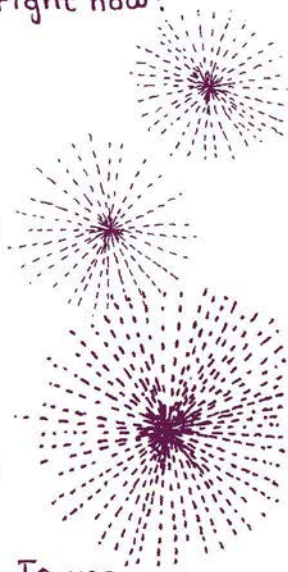
Vinegar Rinse + Conditioner

4 c very hot water

$\frac{3}{4}$ c vinegar (cider is nice)

2 T each dried nettles, dried rosemary, and dried chamomile flowers

• Tie the herbs up in a bit of muslin and combine with the other ingredients in a jar. Cover + let steep overnight. In the morning, remove the herb bag. To use, work in up to a cup of the vinegar after you shampoo, and rinse well.



Facial Cleansers

Homemade face soaps are wonderful not only because making and using them is so satisfying, but because they cost a fraction of the price of drugstore cleansers. You can make a big batch of simple cleanser and add different ingredients according to your changing skin, the seasons, your mood, anything!

* Simple Face Soap *

1 oz grated bar soap - homemade, castile, or your favorite purchased soap, or liquid soap

2 c hot herbal infusion, made with herbs suitable for your skin type, or plain water

Combine soap + water in a jar + let sit overnight so the soap can dissolve. To use, massage a bit into your skin and rinse with water. If you want a foamier cleanser, increase the amount of soap. Other ways to customize:

- add up to five drops of suitable essential oil.
- add witch hazel extract for oily skin, glycerin or honey for dry skin
- add baking soda to make a paste-y, scrubby cleanser
- crush two aspirins into powder and add to the soap to make a cleanser for pimply skin.
- increase the amount of soap in the recipe and use antiseptic herbs and oils to make an antibacterial wash for hands and minor injuries.



* Creamy Lavender Cleanser *

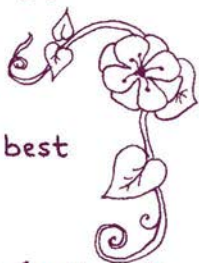
1 part each: jojoba oil
glycerin (found at drugstores)
cornstarch

3 drops lavender oil

Combine ingredients in a bowl and mix until smooth + creamy. Transfer to a small jar. To use, rub some into your skin, wipe it off with a soft cloth, and rinse well. This cream is like a nice, light cold cream. Since it contains no beeswax or lanolin, it's easy to rinse off and is naturally vegan - just make sure your glycerin is vegetable-derived.

* Rose & Honey Face Wash *

1/2 c rose water; homemade is best
2 T liquid castile soap
1 t honey
up to 5 drops rose essential oil (optional)



This is easiest if the rose infusion is still warm. Combine the rose water and honey and stir until the honey is dissolved. Add the soap and oils and mix well. Store in a pump bottle and use by rubbing the liquid over your skin and rinse with warm water. This recipe can also be added to your bathwater.



Herbal infusions are really terrific for treating conditions like acne, rosacea, dryness, and so on. If your skin is troubling you, splash or rub some herb-infused water, vinegar, or diluted tincture on your skin after you wash it. Here are some suggested combinations:

- ACNE: peppermint + birch bark - infused vinegars with a few drops of lavender oil
- ALSO ACNE: witch hazel extract infused with sage and lemon balm, plus 10 drops tea tree oil (per cup of infusion)
- ECZEMA: strong infusion of equal parts chamomile, nettles, and calendula, with about a spoonful of Epsom salts dissolved in it
- DRY SKIN: rose-infused water with a spoon - full of honey and a few finely-ground almonds
- IRRITATED SKIN: equal parts water and aloe vera juice. Infuse the water with comfrey and calendula.
- ROSACEA: water or vinegar infused with oatmeal (wrap some in a bag, like you're making tea), chamomile and licorice.
- ROUGH SKIN: vinegar infused with birch bark, rose, and chamomile flowers. You can also replace the birch bark with one or two crushed aspirin tablets.

Exfoliation and Other Pleasures

There are basically two ways to exfoliate your skin. *Mechanical scrubs* rely on small particles, like sand, salt, and ground-up plant parts, to create friction that rubs off dead skin cells. Loofahs and brushes work in the same way. Abrasives also increase blood flow to the skin. Even if you don't care about stuff like exfoliation, I heartily recommend giving yourself a good scrub now and then. I use a stiff-bristled brush on my skin every morning before I shower and it makes a huge difference in how awake I feel.

Chemical scrubs, even hundred-dollar schmancy ones, generally depend on hydroxy acids, which work by dissolving the intercellular glue between bits of dead skin. Hydroxy acids are present in many fruits, milk, sugar and other plants like birch. They're seriously everywhere; it's pretty ridiculous that people pay so much money to get them in a jar.

Some notes:

- If you have sensitive skin, avoid really grainy scrubs.
- Scrubs + brushes/loofahs work best on dry skin.
- If you're scrubbing your whole body, do your legs first, then your arms, then your torso. Always rub towards your heart, and be gentle with the skin atop your vital organs.

Scubby Scrubs

The instructions for all of these are the same: just rub the scrub around on your skin for about 20 seconds (or whatever), and rinse well. Most can be used for face and body; the exceptions would be very coarse, salt-based scrubs, which you should keep to below the neck.

★ for oily skin★

- baking soda, a crushed aspirin, and enough water to make a paste
- handful of sea salt + 1 T ground sage, moistened with birch or lavender infusion
- sugar moistened with lemon juice
- still-damp coffee grounds (used)
- equal parts milk powder and honey, plus a little lemon juice and cornmeal
- sea salt with 2 drops tea tree oil
- equal parts ground oatmeal and plain yogurt
- a handful of cornmeal moistened with honey
- a slushee of sugar and almond oil or aloe vera gel
- ground dried adzuki beans and a pinch of dried calendula petals, + a little water
- rice flour, a tiny bit of liquid soap, and water
- one or two ground aspirins and a dab of honey

★ for dry skin★

- brown sugar a pinch of ground rose petals, and a wee bit of apple cider vinegar
- equal parts honey and finely-ground almonds
- sea salt + a few drops essential oil + enough olive oil to make a thick slush
- 1/2 an avocado with enough oat flour to make a paste
- ground flax seeds and a little rose water
- 2 T each ground oats and almonds + 1 T rose water + 1 T heavy cream
- equal parts plain yogurt and ground almonds
- a little plain yogurt mixed with the contents of 1 bag of green tea (about 1 tablespoon).

★ for normal skin★

super precious face oil

This is the stuff I use on my face every day. I love using it: the bergamot, lavender, and clary sage oils make me feel happy and relaxed, and using a dropper makes me feel like a scientist. If you keep this oil in dark glass and away from heat and light, it will last you a very long time.

2 oz carrier oil (see below)

15 drops essential oil(s) suitable for your skin

→ For oily skin, use grapeseed oil, hazelnut, or jojoba oils

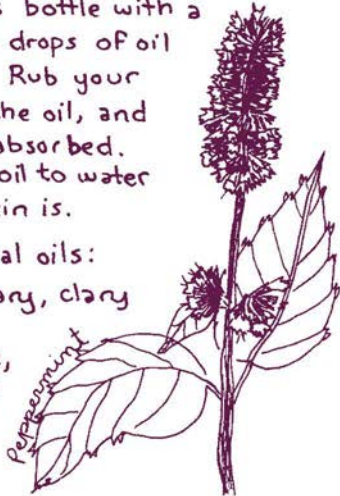
For normal skin, use almond, jojoba, or apricot kernel oil

For dry skin, use olive, coconut, or macademia nut oil. For really dry skin, mix in some avocado oil also.

Combine the ingredients in a small bowl and funnel it all into a dark glass bottle with a dropper. To use, combine 2-3 drops of oil with 4 drops of warm water. Rub your hands together to emulsify the oil, and pat it on your face until it's absorbed. You can change the ratio of oil to water depending on how dry your skin is.

Some suggestions for essential oils:

- Oily skin: 5 drops each rosemary, clary sage, and bergamot oils
- Normal skin: 5 drops each rose, lavender, and peppermint oil
- Dry skin: 5 drops each chamomile, rose, and orange blossom oil



Easy Deodorant Powder

• Combine equal parts cornstarch and baking soda and add a few drops of an antibacterial essential oil like lavender or tea tree. Store in an airtight jar to preserve the scent. You can slap this on wherever you like - put it on with a powder puff, if you're fancy.

* reduce the amount of baking soda in this recipe to make body powder, which absorbs moisture + prevents chafing

DIY Toothpaste

2 oz chalk (calcium carbonate - found @ hardware stores and online)

1 oz baking soda

Pinch stevia powder (for sweetness)

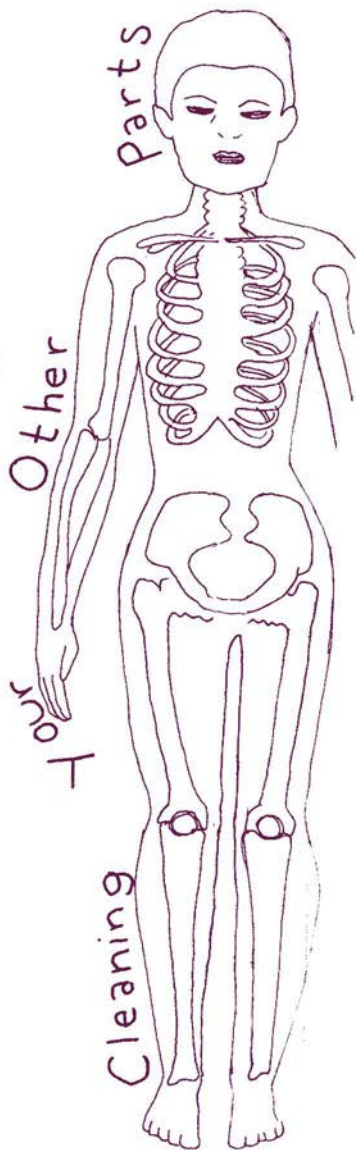
Vegetable glycerin

5-6 drops peppermint oil

• Combine dry ingredients and oils with enough glycerin to make a paste. Keep the paste in an airtight jar, along with a little spoon to get the paste onto your brush.

• Other good oils include cinnamon, rose, clove, and lemon

• Yes, just plain baking soda (or soda + stevia + peppermint oil) is an easy and effective alternative to this recipe.



cat & dog care ⁷⁷

Basic Dog (and cat) Shampoo

1/2 T castile soap - use lightly scented or unscented soap

1/2 c warm water

Combine soap + water in a jar + shake to combine. Dampen your dog's fur, rub in the shampoo, and rinse thoroughly. Make sure not to get this in your dog's eyes - use a soapy washcloth to clean his/her face.

If this soap leaves a residue on your dog's fur, rinse with a cup of vinegar diluted in water.

Fancy: replace the warm water with an infusion of half lavender and half rose geranium. This will help repel fleas and ticks.

Dry Shampoo for Cats...and people!

1/2 c cornstarch

2 T lavender flowers, ground fine

Sprinkle some of this on your cat's fur, rub it in, and brush out after an hour or so.


*NOTE: Avoid using essential oils on animals.

If you really feel you need to use them, make sure they're heavily diluted - no more than 1 drop oil to 1 cup of carrier.

chapter 3


Gardening





Other than killing stuff, making tools, and breeding more of ourselves, gardening is our most enduring hobby as a species.

No wonder, then that it can get so incredibly complicated! In researching this chapter, I encountered more techniques, tips, and fussy projects than I thought possible for a process that Nature seems so capable of handling by herself. Human ingenuity, man. And while I think all that stuff is incredible, this chapter will be a very simple affair about growing vegetables. Make that: growing vegetables cheaply and organically. Because what's more DIY than that?

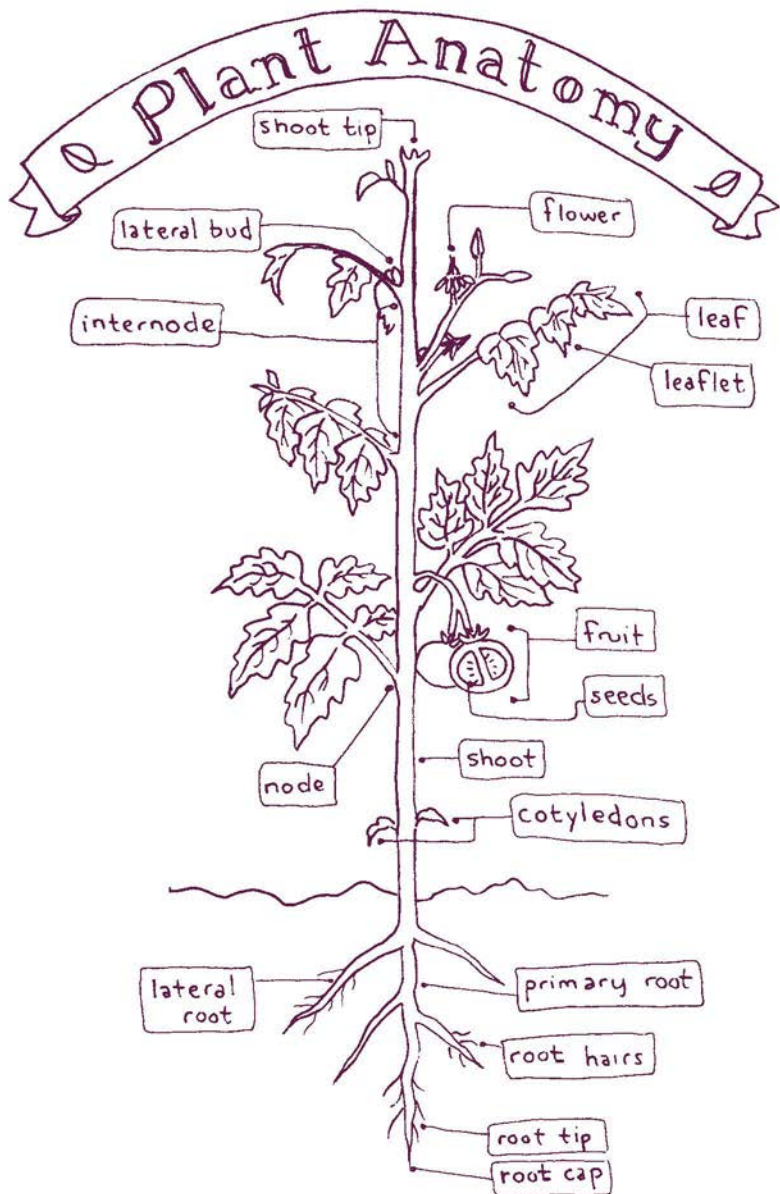


It's the greatest nesting skill on Earth!

Or at least, it's something that's always interested me, and if you're reading this, it probably interests you too. Ok? Ok!

* Super shoutout: this chapter depended heavily on the superb expertise of my dear friend *Dry Fox*, who is a phenomenal gardener and an even better friend. Thanks girl! *



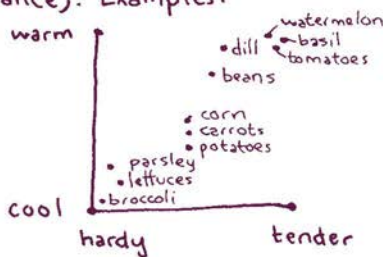


A (very) Brief Glossary* * of Gardening Terms *

• **Annual:** a plant that completes its life cycle within one year. The life cycle being:

seed → plant → flower → fruit → dead → seed

This means you'll have to plant these every year. It also means that if you don't like something, it's not going to stick around forever. Most vegetables are annuals, and are separated by season and hardiness (frost tolerance). Examples:



• **Perennial:** a plant that dies down to the ground in winter but keeps its roots alive underground, allowing it to grow back in the spring. There are only a few perennial vegetables (rhubarb, asparagus, artichokes) but many perennial herbs, including:

- lavender, thyme, chives, oregano, sage, mint, lemon balm, rosemary, tarragon

Perennials can tolerate a lot more and are generally less wussy than annuals, so consider making a permanent place in your life for them.

They also make excellent houseplants!

• **NPK**: if you're shopping for fertilizer you'll see this acronym alot. NPK stands for nitrogen (N), phosphate (P), and potash or potassium (K), which are the three main nutrients plants need. On the fertilizer package you'll also see a number like 10-10-10 or 5-10-5. This refers to the proportion of each nutrient in the fertilizer mix.

• **Mulch**: a material spread over soil in order to maintain the soil's integrity. Mulch helps keep in moisture, maintain a steady temperature, and it keeps weeds from germinating; basically, it's a blanket for your garden. If you want to mulch, make sure you do it when your garden soil is just how you like it - if you mulch overly damp, cold soil, it will stay that way. Some materials that make good mulch: straw, compost, grass clippings, shredded newspaper, gravel, wood chips, and pine needles.

• **Aeration**: the process of loosening soil by digging or tilling. Aerating your soil decompacts dirt and allows air to pass through soil particles.

• **Cultivar**: this term refers to a variety of plant originated by gardeners instead of in the wild.

• **Heirloom**: the definition of an heirloom is hotly debated, but generally, an heirloom is a very old (like, at least 50 years old) cultivar that is not a hybrid.

Assessing your Space

Regardless of whether you are planning to garden in your backyard, your windowsill, or a vacant lot, the first thing you need to do is to take a census of your space and its resources. Here's a list of questions to ask yourself when you're looking around:

Space

- How big is your proposed garden or container? Do you have enough room for a mature root structure? If you want to grow tall plants, do you have the required vertical space?

Sunlight

- When will your garden get direct sunlight? Are there any pesky shade trees or tall buildings nearby? How many sunny days do you get during the warm season?

Water

- Is there a hose or other water source nearby? Is your local climate rainy or arid? How much time are you willing to spend watering? Do you plan to use greywater in your garden?

Soil

- Do you know what kind of soil is prevalent in your area? What other plants are growing in your neighborhood? If you wet down your lawn, how quickly does it dry out again?



Weather & Climate ... & Landscape

• Is your area prone to drought, tornadoes, heavy rains or other ill weather? If so, how protected is your garden? Do you live in a city? Do you have to worry about pipes/neighbors/ car exhaust? Does your area have any invasive species that should be avoided (like English Ivy in the Northwest U.S.)?

Pests

• Do you know what creatures are waiting to eat your plants? Is your area rural enough to be home to larger herbivores, like rabbits or deer? And what about plant diseases? Are there any that your region is particularly vulnerable to?

I know this self-quiz seems really long, but don't fret - these questions are really just a way for you to remember all the little specifics which seem obvious in retrospect ("I planted roses in the desert and I'm sick of watering them!") but are easy to forget. Doing as much troubleshooting as you can before you plant will save you a lot of grief later on. If that makes your brain hurt, here are good rules of thumb:

- grow your vegetables on level ground, or in rows cutting across the slope of the ground, to prevent soil erosion.
- make sure your plots are near a water source; use greywater only on non-edibles.

• Vegetables and other edibles will grow best if⁸⁵ they get at least 8 hours of sunlight each day, so choose a spot that's not shaded over by trees, buildings, or other structures.

When to plant

Unfortunately, if you're growing stuff outside, you can't really just stick a few seeds in the ground in January and wait for a zucchini to pop out. Different plants have different seasons based on their ability to handle low temperatures, frost, and so on. If you know when to plant each veggie you'll be able to maximize the plant's yield and eat much better. I wish I could draw a little chart and just tell you when to plant what, but alas, I don't know where you live. So you'll need to do two things:

1. If you live in the US, figure out which USDA zone you live in. The USDA splits the nation into 11 "hardiness zones" based on average minimum temperatures. It's kind of an old system, since it was introduced before most people gave a crap about factors like pollution. But gardeners and farmers still use it. You can



find this map in almost any gardening book or website, and on the USDA's website (which also has lots of information about specific crops, invasive species, and, uh, corn prices).

The map is swirly and colorful and would make a really rad poster. Once you know your zone, you can look up a planting schedule, which will tell you stuff like:

- a plant's frost tolerance and the length of its season;
- minimum soil and air temperatures for many different vegetables; and
- the best times of year to start seeds (more on that later) and to plant them in the ground.

You can look up planting schedules online or in a farmer's almanac. If you live outside the US, check your government's agricultural agency for information on planting.

A lot of gardeners like to apply a more intuitive approach to timing, because it fosters a deeper connection between them and the earth. I think that's really lovely; but I also think that beginning food-growers should try planting by the books for a year or two and then work from there.

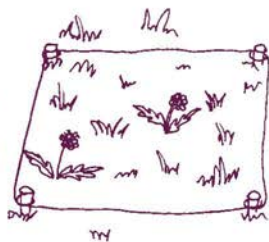


Making Beds

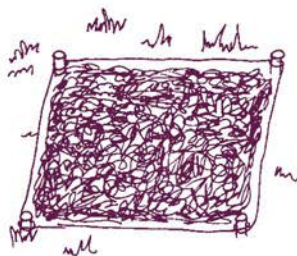
If you only do two things to your garden, let them be these: ① work some compost into your soil, and ② build a raised and/or sunken bed. Why? Because I like watching you sweat! Just kidding. Because adjusting the height of your garden can solve a lot of problems. A raised bed will increase drainage, reduce the number of weeds, snails and slugs amongst your veggies, and will make gardening more accessible to folks with limited mobility. A sunken bed will help sandy or otherwise dry soil retain moisture + nutrients. Whichever style you choose, you will need some rot-resistant wood (like red cedar) if you can get it. You can certainly use any untreated lumber you like, but tough woods like cedar will make for long-lasting beds. Depending on how high you want your bed to be, you can use one plank per side, or stack them. Length and width are also up to you, but keep in mind that if you can't reach the middle of the bed you're going to feel silly. 6' x 4' is a good bed size, and you can certainly make more than one per yard. If all types of wood are beyond

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your budget, cement blocks are an easy, scavenge-able alternative, as are bricks and stones joined with or without mortar.

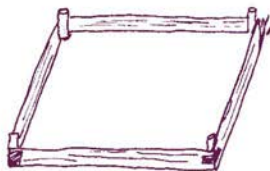
① Plot the size and shape of your bed by pounding in some wooden stakes at the corners of the planned bed. String rope or twine between the stakes.



② Inside this shape, dig up as much vegetation as you can. If you're not planning to plant for a few months, you can cover the ground with plastic to kill off any weeds. Leave the plastic on for 2 months or so. Once you have a bare patch of earth, work it well with a shovel.

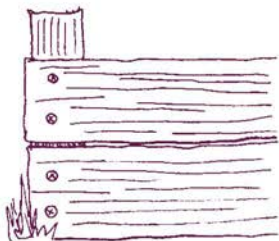


③ Place your planks with their long ends against the stakes. Get a friend to help you hold the planks while you check the tops of the planks with a level (if you care). Secure the planks to the stakes with wood screws. If you like, you can tack on some metal brackets outside



the frame using wood screws or nails.

④ If you're making a very tall bed, keep stacking + securing planks atop the first until the bed is as high as you'd like it to be.



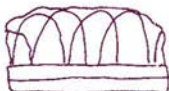
⑤ Time to fill your bed! You can use soil from other parts of your yard, potting mix, layers of dirt and compost and mulch - whatever you like!




If you want to build a sunken bed, the process is similar. Basically, you'll need to dig out a very large, shallow hole, place the stake-and-plank frame inside it, and tamp the dirt down around the outside of the frame.



* A pretty awesome amendment to a raised bed: a tiny greenhouse! Collect a couple of hula hoops of equal diameter, saw each in half, tape or otherwise secure their feet to a couple of 2x4's (as shown), and cover the whole thing with plastic! RAD.



tips for garden layout

 make sure beds are at least a foot and a half apart from each other, so you have someplace to walk. Planks or flat rocks will keep it dry.

- Plant as far as you can away from trees and shrubs. Not only will they shade your garden, their roots will suck up water + nutrients.

- Keep annuals and perennials in separate beds or in separate areas of the garden. Woody herbs, for example, need less water than many annuals, and in the fall, you'll be able to clean up your annual beds without disturbing the still-living perennials.

- Plant your tallest veggies (corn, trellised vines, etc.) at the north end of your garden, and your low-growers at the south end. This way all your plants get that lovely southern sun.

- Save very sunny spots for fruit-bearing plants and roots. A good rule is that if a plant is made up mostly of green leaf, it can tolerate more shade than one that isn't. Lettuces, collards, cabbages and so on grow well in partial shade because the large surface area of their leaves makes for maximum sunlight absorption.

• Try your hand at companion planting: plant rows of early bloomers like salad greens and radishes in between rows of long-term crops like peppers. You'll save a ton of space this way, because you'll harvest those short-term veggies before the peppers are big enough to need that extra room.

• If your goal is to actually subsist mainly on your garden, plant several varieties of a vegetable you eat a lot, like an onion or carrot. The different plants will take varying lengths of time to mature, so you'll have a steady income of onions over a couple months instead of a buttload of them in the same week.

• Annual veggies are basically divided into cool season crops and warm season crops. You can start early in the year and plant a quick-growing crop, harvest in the spring and immediately replace it with a summer crop.

Repeat in the fall with some hardy broccoli or root veggies, and you'll get three harvests out of one patch of dirt. CHA-CHING!

• Herbs are awesome to have in your garden, but certain types can get way out of control.

Mint and yarrow are notorious for this.

Consider keeping a separate bed for herbs, or even better, plant herbs in containers, inside or outside your home.

92 The Buddy System

Plants are sort of like superheroes: each has its own specialty (bug-repelling, nitrogen-fixing, etc), but when you let them hang out together, those advantages are compounded. Try using plant buddies if you find yourself using a lot of fertilizer or bug spray.

Plant	Good Buddies	Bad Buddy
Beans	carrots, corn, radishes, peas, lettuce	onions
Beets	beans (bush), cabbage, onions	
Cabbage	beets, celery, onions, tomatoes	strawberry
Carrots	beans, lettuce, peas, radishes, tomatoes	
Corn	beans, squash, melons, peas	
Cucumber	beans, corn, lettuce, onions, radishes	strong herbs
Lettuce	carrots, cukes, radish, strawberries	
Melons	corn, radishes	
Onions	beets, carrots, celery, cucumber, peppers, tomatoes, squash	beans, peas
Peas	beans, carrots, radishes, turnips	onions
Peppers	onions	
Radishes	beans, carrots, melons, lettuce	
Spinach	celery, eggplant, cauliflower	
Squash	corn, onion, radishes	
Strong Herbs	cabbage, peppers, tomatoes	cucumber
Strawberry	beans, lettuce, onion, spinach	cabbage
Tomatoes	cabbage, carrots, spinach	corn
Zucchini	corn, onions, radishes	

dirt aint dirt: testing and improving your soil

There are several Soil-based factors that influence which plants will grow where. The first of these is soil texture or composition. Besides bugs, rocks and roots, soil is generally made up of clay, silt, and sand. If you have very sandy or clayey soil, it's going to change what kind of care you give your plants and what will grow well there. Here are two ways to test your soil's texture:

Method 1: Dirt Ballin'



• Grab a handful of recently-watered soil and roll it into a little ball. If it holds tightly and is tacky to the touch, you have clay soil. If it will not stick together and is sharp or gritty-feeling, it's sandy soil. If it holds somewhat and feels soft, like a river bed, it's mostly silt.

Method 2: Dirt Parfait!



• Fill a large jar $\frac{2}{3}$ full with water. Add a squirt of dish soap and fill the jar the rest of the way with dirt. Shake well and let settle for 2 days. The dirt will separate into three layers as shown at left. Naturally, the biggest layer is what your soil is mostly made of.

If what you see in your jar has about equal parts sand and silt, with slightly less clay, congratulations! This means you've got loam soil, which is very nice soil indeed: it drains well and also retains needed moisture and nutrients. Don't freak if you don't have loam soil! You can still have a rad garden — you just need to either adjust your soil or reconsider what plants you want to grow. To adjust very clayey or sandy soils, work compost into the first foot or so of soil. If your beds are still too moist, consider building raised beds to increase drainage. If your soil needs constant watering, a sunken bed can help.

An alternative to all of this is to simply sow plants that like to live in the type of soil you have. This might narrow your choices a bit, but it's a very sustainable way to garden. For sandy soil, try planting:

• root vegetables, vines and leafy veggies, like:

- tomatoes
- squashes
- potatoes
- carrots
- spinach
- peppers
- strawberries
- corn
- lettuces

- ★ keep in mind that sand drains quickly and if you don't build a sunken bed, you'll have to water often.
- ★ nutrients leach quickly in sandy soil, so you might need to fertilize more often

For heavy clay and silt soils, plant these: ⁹⁵

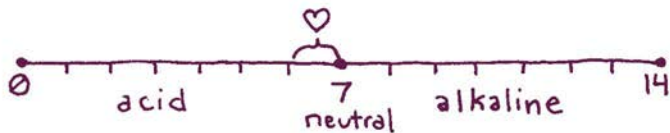
- shallow rooted plants, like pear trees
- virtually all members of the large + tasty Brassicaceae family:

- broccoli
- cauliflower
- cabbages
- kohlrabi
- kale
- Brussels sprouts

- clay soil is fertile and nutrient-rich, but does not drain well. If you don't build a raised bed, work your soil well to decompact it, and cut down on your watering.



Once you've worked out your soil texture, you need to determine its pH. On the standard pH scale, ideal soil is about here:



To test your pH, get a kit from a garden store, or send a jar of dirt to your local county extension office for testing (www.csrees.usda.gov/Extension).

- Very alkaline soil can be corrected by working in sawdust, wood chips, or partially rotted leaves.
- Very acidic soil can be corrected by adding crushed oyster shells or wood ashes.
- An inch of compost worked into the soil will balance slightly acidic or alkaline soil. It will also improve drainage, fertility, and everything else!

96 ComPost for beginners

Everyone loves composting. It's a fact!

Tending a compost heap is the easiest, cheapest, most environmentally sound way to create healthy soil for your garden. IF you don't already have a compost pile in your yard or apartment complex, here's how it should go down:

① Grab a trash bag and a bucket. Use the bag(s) to collect stuff like paper scraps, straw, dead leaves, and other dry material. What you'll have is a bag full of carbon-rich substance that will form the base of your compost.



Meanwhile, fill the bucket with nitrogen-rich matter like grass clippings, food scraps, aged manure (see note), and so on. Many of my friends keep a lil' bucket under their sink just for compost fodder. FYI, you can also compost:

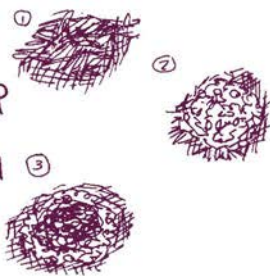


- bread products
- lint
- egg- and nutshells
- wood ashes
- flat beer
- junk mail (shredded)

② Find a spot in your yard and, if you wish, build an enclosure for your compost. You could buy one, of course, but it's just as easy to nail some pallets together, or bend some wire mesh into a cylinder. A big pile in a corner of the yard is also fine.



③ To build your compost, start with a bed of dry, carbon-y stuff about 6 inches deep. On top of that, spread a 2 inch deep layer of nitrogen material. Then, the icing, as it were: a shovelfull of dirt from your garden. The garden soil will introduce the organisms that will be making your compost.



④ Repeat these three layers until the pile is about three feet tall. This part goes by very quickly if you have some friends and a couple of extra shovels. Try to keep the ratio of dry stuff to moist stuff at around 3:1.

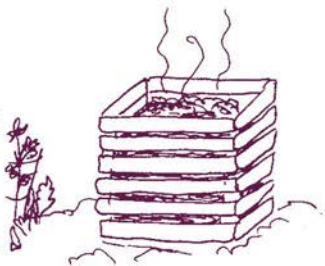


⑤ Water your compost until the whole thing is just damp, but not wet.



⑥ Over the next couple of months, this pile should get quite warm.

This is a good sign, as it signals that decomposition is taking place. If, after a month, it's not warm at all, add some more moist, rotting vegetation. Once or twice a month, turn the compost well using a shovel or pitchfork. Doing so will redistribute the decomposing organisms, which tend to migrate towards the center of the pile. Add more organic material (carbon stuff and nitrogen stuff) as you acquire it.



If it's well-tended, a compost heap should be ready within 6 months. You can tell the heap is ready if it's dark, crumbly, and has a lovely fresh-earth smell.

NOTE: People disagree about whether or not to compost cat and dog poo. Carnivore feces can contain a lot of harmful bacteria that you don't want near edible plants. Because of this, most folks will tell you to keep any and all dog/cat/wolf shit far from your compost. However, some people argue that a very active compost heap can get hot enough to kill pathogens - 160°F, to be exact. So, if you want to compost pet waste, please make sure you've got a real rager of a compost pile going. Otherwise, toss your shit elsewhere.

About Seeds

Some plants are pretty easy to grow from seed: herbs, for example, are laid-back and will most likely sprout anywhere you plant them.

Other plants are more finicky and I'll discuss them a bit later. If you're shopping for seeds, ask around first to find out if other gardeners you know favor specific brands; most experienced gardeners will have one or two brands that they find to be the most consistent and affordable. You might also try buying the same type of seed from two different sources and comparing the results of each.



For a more grassroots approach (no pun intended), check out local farmers' markets and community gardens to see if there is a seed-swapping collective or seed library in your area.

When you're planting seeds, you can either stick them straight in the ground, or you can start growing them in a small, well-controlled environment until they are big enough to be transplanted. Which path you take depends a lot on where you live: if you have good soil and consistently good weather, or if your plants are going to live in containers, direct planting is no big deal. If your area tends to get random cold snaps and weird weather

patterns, as mine does, you can give your little ones a fighting chance by making sure they are strong and healthy before you put them outside. As you get more experienced as a gardener, you'll begin to cultivate (again, no pun) a sense of what kind of care to give a specific seed.

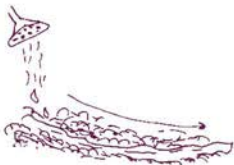
★NOTE: Always read your seed packets - they provide important information about water, sun, etc.

Direct Planting

① Always prep your beds before you plant. The soil should be moist, but not wet - too much water will prevent air circulation in the soil. Use a trowel or shovel to turn over the first few inches of earth. Doing this helps break up clumpy or compacted dirt, and it introduces air into the soil, which improves drainage.

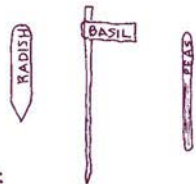
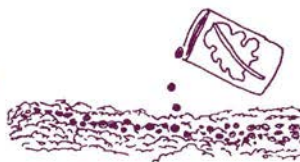


② After you've aerated, dig a little ditch with your trowel and shift the earth you dig out to one end of the ditch. It should look like a little slide. The depth and angle of the ditch will help direct and contain water. This is especially important if you have a diversity of plants in your garden, as some plants will need more water than others.



③ Sprinkle the seeds down into the ditch, not crowding them too much, and lightly cover them with soil. Small seeds (like herbs and lettuces) only need about $\frac{1}{8}$ " of soil on top. Bigger seeds will have to be planted farther down. Read your seed packet if you're unsure how deeply you should plant.

④ Finally, water your seeds and mark off your rows with sticks so you can tell where they are. You should also stick a label in there somewhere.



Ideas for recycled plant labels:

- ★ Cut a piece of clear or translucent plastic into strips or stake shapes and write on them with permanent marker. You can use milk bottles, salad bar clamshell containers, old blister packaging, or anything else you can think of. The translucency is important, as it will let light through to delicate seedlings.

- ★ Snip an aluminum can into strips and bend the strips around sticks or skewers. Write on the inside of the can by pressing hard on the metal with a ballpoint pen.

- ★ Save all your popsicle sticks, write on them with permanent marker or waterproof grease pencil, and cover with clear nail polish.

Growing Seedlings

Many gardeners prefer to start their seeds in a controlled environment until they develop into baby plants. You can do this with the help of some soilless seed starter and a lidless egg carton. You can use good potting or garden soil too, but since seed starting mix has no dirt in it, it's free of stuff like weed seeds and harmful bacteria. It also drains well.

Seed Starting Mix

You can find these ingredients at any nursery or hardware store:

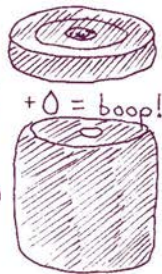
1 part perlite

1 part peat moss

1 part ground sphagnum moss

Mix ingredients and keep in a bag or covered container, to keep out wayward seeds & spores.

If you don't feel like making starter mix, you can also use peat pellets, which you can buy for cheap at any nursery. Peat pellets are these amusing little pucks of peat moss that expand dramatically in water. They look like those little party favors that grow into wee face cloths with dinosaurs on them. But instead they turn into perfect little chunks of seed starter. Yippee!



① Fill each depression with damp (but not wet) starter mix that you've loosened with your hands. Tamp the soil down lightly to firm it up a bit. IF you're using pellets, soak them in water until they're fully expanded, and then put one pellet in each egg cup. Make a little dent in the center of each pellet.

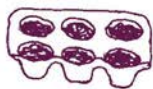
② Place a few seeds on each mound of dirt and cover the seeds lightly, or not so lightly, depending on the seed. Label your seeds, if you planted more than one kind.

③ Sprinkle the newly planted seeds with a little water.

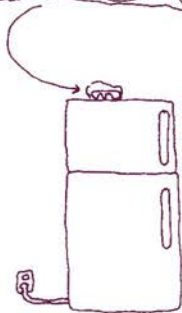
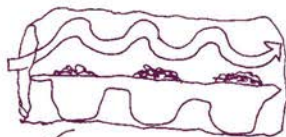
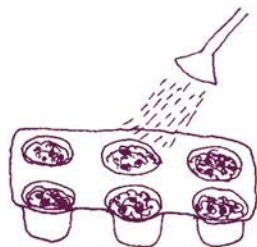
④ If you like, cover the whole shebang loosely in clear plastic to create a tiny greenhouse. This will keep the seeds warm and moist. Keep the plastic on only until you see sprouts poking out. Also, make sure to let air circulate inside the plastic, to prevent molding.

⑤ Place the egg carton in a warm spot and keep an eye on it. Since the seeds are

Yeah, I can't draw egg cartons, but you could use a muffin tin too! WHATEVER.

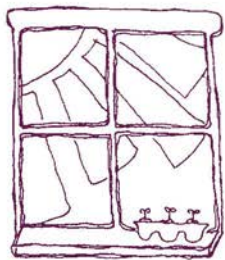


SIDE VIEW:



still unsprouted, sunlight is not an issue, so don't bother putting them near a window.

- ⑥ Once you start to see signs of life, take the plastic off and move the carton into indirect light.



Take care of your plants until you can see that the new roots have reached the cardboard of the egg carton. From there, you can either transfer them to a bigger container that you've filled with garden or potting soil, or you can put them in the ground. But before you do either of those things, consider hardening off your plants. Maybe you are thinking, "what the hell is



HARDENING OFF?"

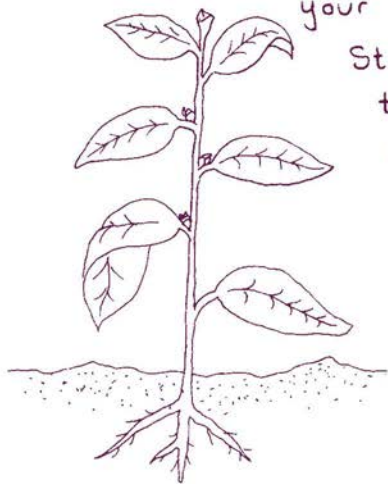
① This bizarre phrase refers to the process of gradually acclimating young plants to new growing conditions. It's sort of like getting your cat to eat a new kind of food- in order to not piss her off, you have to introduce the new stuff slowly until it is familiar and comfortable for her. If you have seedlings that you've been keeping indoors, or in a greenhouse, introduce them to the garden over a period of one or two weeks:

★ Begin to put your plants outside each morning. The first day, put them out only for a couple of hours; as the week progresses, leave them outside for longer and longer periods of time. You might also try switching periodically from sunny spots to shady spots.

★ Don't leave your babies at the mercy of the frosty night! If it's too cold, your plants won't get stronger – they'll just bite it. So bring them indoors or cover them if you think it's going to get chilly.

★ When you reach the point where you're leaving the seedlings out all the time, and they look strong and healthy, you can go ahead and transplant them to your garden (see "Planting

Starts" on page 108). Try to transplant in the morning or evening, when the ground and air are not significantly hotter than the soil around the roots of the seedling. A smooth transplant means a healthier seedling!

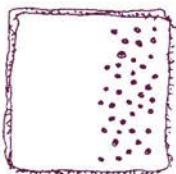


Sprouting seeds

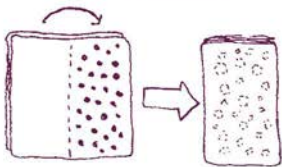
If you're trying out a seed you've never planted before, or your seeds are from a new source, you'll want to sprout them first to make sure they are viable. Sprouting is easy and beautiful, and if you're sprouting beans or alfalfa, it's also quite delicious. I also recommend sprouting to anyone who's into plant morphology, because it allows you to witness a really amazing process that's usually hidden underground.

NOTE: Sprouting does take some finesse. Show your seeds some love!

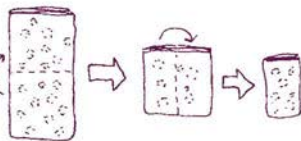
① On a tabletop or other flat surface, lay down two sheets of paper towel, one atop another. Sprinkle your seeds across one half of the resulting square.



② Spread the seeds out in a single layer and fold the seed-free half of the towel over on top of the seeds.



③ Fold the package twice more. Take care to keep the seeds from falling out or rolling around. This step should be done slowly.



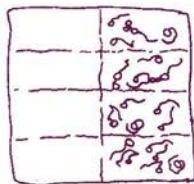
④ You should end up with a rectangle of towel about 8 layers thick. Add water to the towel a splash at a time, until all the layers are damp but not dripping wet. Try to get the towel to feel like a wet nap straight from the package.



⑤ Place the damp towel in a plastic bag, seal it up, and slap a label on it. If you accidentally over-wet your towel, leave the bag open to let it dry out a bit.



⑥ Let the sprouts sit in a cool place for about a week. Add water only if the towel is dried out; otherwise, give them their privacy. After a week is up, gently unfold the towel and - ta dah! - you've got a bunch of little squiggles that want planting.



⑦ Very carefully remove sprouts from the towel and plant in the ground or in a seed starter medium.



108 Planting Starts

Some plants, like tomatoes, produce such delicate little seeds that a lot of gardeners don't even try to start from scratch. This is why most stores and markets you go to will have an abundance of small tomato plants (called starts) that are ready to be planted in the ground. A well-stocked nursery will have lots of different starts for vegetables, fruits, herbs, and ornamentals. Using a start relieves you of the burden of coaxing a seed to sprout and develop a root structure. If you've never grown anything before, taking care of a start will help you learn how plants develop and how to keep them healthy. Another plus: ♥ instant gratification ♥

① Prep your beds like you're planting seeds, then dig a hole that's a little deeper than you think it should be. You're looking to bury a little of the plant's shoot under the soil. This will encourage the plant to grow new roots at the soil line.



② Fill the hole up with water.

Gently remove the start from its little cup and look at it's lower half. You should find a compact ball of soil and roots. Loosen the root ball with your fingers, being careful not to tear or damage the roots.



③ Place the start down into the hole and refill it with earth. Tamp the soil down firmly around the plant's stem—it will need the support. This also forms a little valley around the plant which will help direct water to the plant's roots.



When you're shopping around for starts, look for perky plants with sturdy main shoots, the thicker the better. Many lateral stems are also a good sign. Pass on plants that are super leggy*, are drooping over, or have signs of insect damage. If you like, you can hold the plant on its side and tug off the container to check the roots. Look for a root ball that's sizable, but does not make a tight basket around the inside of the container. Root-bound plants are difficult to transplant and will not grow very well.

* leggy = very long main shoot with few lateral stems

watering

Misinformed watering is a really effective way to kill your plants. I feel like a lot of folks think that if they let their plants get dry their whole garden will, like, explode or melt or something. Ok, so nobody thinks that, but still, there's a lot of anxiety about the possibility of underwatering. The truth is that overwatering your plants can be just as bad for them, and damn wasteful to boot.

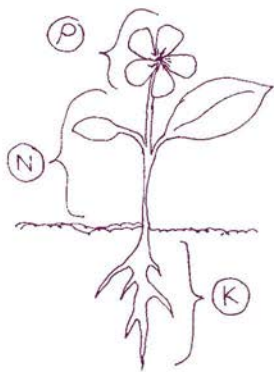
So, here are some tips for proper watering:

- Water your plants whenever the soil is dry 1-3" below the surface, or if the plant looks withered. Stick your finger in the dirt to check dryness
- The best time to water is early morning or late afternoon. Daytime is just too hot - most of the water will just evaporate. Watering at night is usually ok, but it can sometimes put your plants at risk for mold.
- A thorough watering once or twice a week is almost always preferable to daily sprinkling. The exception to this is small seedlings, which need constant moisture. Watering deeply, but less often, will encourage plants to grow deep roots in order to search for moisture. Daily watering is unlikely to seep below the first few inches of soil, and the plants in turn will develop shallow, less stable roots.
- If you see flabby, yellowed leaves, you are overwatering.



fertilizing

I guess we'll call it the way of the civilized world: because vegetables as we know them have been cultivated for hundreds of years, most of them can no longer grow in regular garden soil. They're just used to being pampered. So even if you have naturally good soil and good seeds, you might need some fertilizer. Shopping for fertilizer is intimidating: you can choose either neon blue chemical powder or organic fertilizers like ground up fish. Both of these can seem bizarre and confusing to a novice gardener. Luckily, unless you have a very large operation underway, you won't have to deal with all that. There are lots of effective, sustainable fertilizers that can be had for next to no money. But first, some science.



Plants need three main nutrients: nitrogen, phosphorous, + potassium. Nitrogen is essential in the formation of leaves and shoots, phosphorous encourages flowering, and potassium (potash) is a root stimulant. A good garden will need all three of these, plus a few trace nutrients like calcium and magnesium. Nitrogen, in its soluble form, is gobbled up by

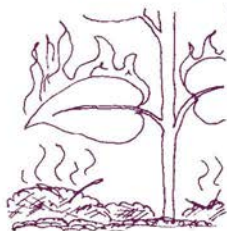
vegetables and is leached easily from the soil by rain or irrigation; if you live in a rainy climate or you water a lot, your garden might need a nitrogen boost more often. Other nutrients, especially potash + trace minerals, stick around a lot longer. Unless your garden is under constant torrential downpour (at which point an indoor garden is probably a good idea), you won't need to add these nutrients more than once or twice a year.

And now...we fertilize!

• Compost, your favorite thing in the world, is a fantastic fertilizer! Make sure your heap contains stuff like grass clippings, wood ashes, egg shells, used coffee grounds, and if you can get it, kelp and cow or horse manure. These materials make a very rich, balanced fertilizer. When your compost is totally decomposed, work it into your soil, a few pounds of compost per square foot of earth. This is best done in the fall when you're preparing your beds for winter, because the soil will settle over the cold months and the nutrients will be redistributed. Also make sure to put some 'post in the bottom of the holes you dig while transplanting seedlings or starts. You should also include a good amount of compost in any mix you're using to grow plants in containers.



A note about manure, and nitrogen in general: it might seem like a good idea to cut out the middleman and spread manure right on your beds, but it's really not. Manure and other really rich sources of nitrogen need to be aged and rotted through before they become usable, and that's why we compost them first. If you overfertilize by putting a buttload (pun totally intended) of manure on your beds, the nitrogen can actually scorch your plants. So, if you notice that the leaves in your garden look burned, even if they're not in direct sunlight, lay off the fertilizer, ok?



Manure tea: is easy to make. Just add a few handfuls of aged manure (available at nurseries) to a pail of water, let it sit around for an afternoon and use it to water new transplants or on plants that look wimpy, especially leafy greens.

Alfalfa tea: You can get alfalfa meal or pellets at the nursery. Put 10 or so double handfuls of alfalfa in a large, lidded container like a trash bin. Fill the bin mostly full of water, stir it with a big stick, lid it and leave it. Stir this once a day or so for 3-4 days or until it starts to smell truly disgusting. When that happens, it's ready! Scoop out some tea with a watering can and sprinkle onto soil that you've already irrigated with plain water. Keep your alfalfa tea in a sunny spot and keep it covered whenever you're not stirring. It really is nasty-smelling, but that goes away after a while.

Staking & Trellising

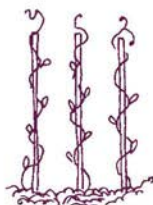
If you're growing tomatoes, peppers, and the like, you're gonna need to overcome your fear of chicken wire (I know: it pokes!) and support those suckers.

Viney plants like nightshades tend to have weak stems and heavy fruits. Once those fruits mature, they're liable to cause the plant to topple in bad weather and/or crush smaller plants. Plus, once the fruits are on the ground, they will most likely burst, rot, or invite hordes of crawling insects. To prevent this, support plant stems with a few stakes, or better yet, a cage. These are easy to make: just bend a rectangle of chicken wire into a cylinder and ploppit over young plants. *DONE!*

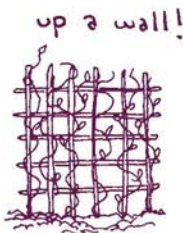
Peas, beans and other vines need support too, but you've got tons more options:



in a tepee!



on sticks!

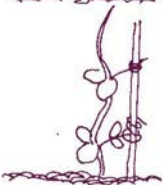
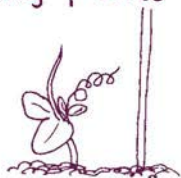


up a wall!



in an arbor!

Vines climb stuff naturally, so to train peas and beans to grow on a support, you really just need to show them where it is. Young plants will start to sprout little tendrils that are quite strong: just wrap these early tendrils around your chosen support, and the vine will start growing up the support. Not only does this add a lovely vertical element to your garden, it makes peas and beans easier to pick! And bean tepees make the best forts ever.



★ If you have older* varieties of corn growing, try training pole beans to grow around the stalks! This is part of the "3 Sisters Garden" used by Native American tribes in the eastern part of North America. The other sister is squash, by the way. *older = stronger than newer hybrids

If you're gardening in a small space, try trellising other plants like squashes, cucumbers, raspberries, zucchini and eggplant. You can get creative here, just remember that a heavier plant will need a sturdier support. To keep fruits in place on the trellis, try securing the stems to the trellis with twine or cut-up pantyhose. Tie loosely to give the plant room to grow.

Maintaining your Garden



So, you've got leaves unfurling and your pea vines are spitting tendrils everywhere. Here is what to do to make sure your garden doesn't bite it:

Weeding

I know it sucks. I know it makes you uncomfortable to try and control what Nature graciously provides. But you gotta do it: if you don't, non-native noxious weeds will strangle your vegetables!

I am not kidding. Keep your garden organized and you'll be able to spot young weeds and get them out before they produce seeds. If you can't get their roots out because they're too close to your veggies, cut them off at ground level and keep cutting them back until they're dead. And remember that a lot of weeds can be used medicinally, so once you get that plantain out of your garden, dry it and use it in a salve!



Thinning

As your vegetables come up, you'll probably have a few rows that are a little too crowded. Go over these rows and pick out a few of the scrawny-looking seedlings to give the healthy plants more room. Larger plants, like pumpkins and eggplants, will need more room between plants than, for example, snow peas. Plants won't grow if they don't have room, so give them their space!

Pruning - some plants, like tomatoes, ripen best in the sunshine. Snip off any leaves that are throwing shade over your fruits.

If you're growing herbs, they'll need to be pruned also. This will keep them growing outwards, rather than upwards. Pruning will also delay flowering, which can cause herb leaves to taste bitter. To trim plants, pinch off the tops of the stalks on a regular basis. They love it!



Preparing for Winter - Even if you planted a garden full of annuals, you'll probably be interested in keeping your soil viable until the next planting. There are a couple of ways to do this.

- ① Start early and till your soil in the fall, after you harvest. Work in compost and other amendments, and cover with a layer of mulch to protect the topsoil.
- ② If you have any perennials planted, they'll live underground through the winter. Pick off any old stems or leaves on top of the soil, and add a layer of mulch to keep roots warm.
- ③ Plant a cover crop! A cover crop will maintain soil integrity, keep weeds from germinating, and, in the spring, it can be dug into the earth to enrich the soil. Grains like rye and winter wheat are popular cover crops. If you're a serious DIYer, you can even harvest your cover crop!

PEST CONTROL

Regardless of how urban your garden might be, it's still part of an ecosystem that includes bugs, deer, birds, and other animals that will enjoy eating the fruits of your labor. They're a royal pain, to be sure, but try to remember that these creatures are just doing what they do. Try not to take it personally! Instead of directing your malice towards them, try to control intruders without killing them. I think it's worth it, even though it's a bit more work. This section will focus on using preventative measures whenever possible, to keep pests out of your garden in the first place. Let's work big to small:

- Deer can usually be kept out with a good fence. You can either install a fence around your whole yard, or make a small garden enclosure out of chicken wire. You can also try gathering human hair clippings, stuffing them in the toes of some old nylons, and hanging them around the perimeter of their garden. Deer think you reek and will avoid anyplace that smells like people.

- Dig out a shallow trench and then install your fence, so part of it is underground; it will guard against rabbits. You can also try scattering human hair around your garden, placing a few vinegar-soaked corncobs in between plants, or sprinkling some red pepper flakes over the dirt. If you like bunnies but don't want them eating your

lettuce, plant some clover in another part of your yard - it's one of their favorite foods.

- To keep cats from digging in your yard, take a few handfuls of thin sticks or skewers and stick them in the dirt at an angle. The sticks will make it so kitties won't be able to find a clear space to squat in. Two more ideas:



- ① Plant a border of lemon thyme or lemon balm (cats don't like citrus);
- ② divert their attention with a plot of catnip elsewhere in your yard.

- Moles don't eat veggies, but they will uproot them in the course of their digging. To prevent this, plant vegetables in a raised bed, lined at the bottom with some wire mesh.

- Some light netting draped over vegetables (or arced over them with half hoops) will keep birds from eating fruits and scratching in the ground. A nice distracting bird feeder can also help.

BUGS!

Alas, you cannot simply build a tiny fence to keep bugs out of your yard. But! There are some ways to control them without resorting to crop dusting. Specific bugs might need specialized care, but here are the basics:

- Know your bug before you launch an attack. A lot of insects are a) just minding their own and not actually hurting your garden, b) only there short-term and will happily leave on their own,

c) actually beneficial to your garden. Focus your energy on bugs that you know are hurting your plants, especially if they're non-native.

- A diverse, healthy garden will attract far fewer pests than an unkempt monoculture. Plant a lot of different veggies, don't overwater, and if your plants die, don't leave their corpses lying around.

- Attract beneficial bug-eaters, like ladybugs, praying mantis, green lacewings, and bats. You can also buy ladybugs and houses for bats. To attract ladybugs, plant umbrella-shaped plants like fennel, dill, and cilantro.

- Strong smelling plants like mint, garlic and rosemary will repel and confuse insects.

- If you find bugs on your plants, a strong spray from a hose will knock them off. Bigger ones (like slugs) can be picked off by hand and dropped into a bucket of soapy water (violent, I know. I'm sorry).

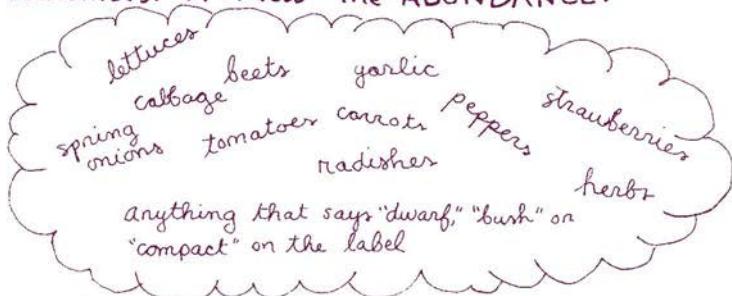
- Add a few tablespoons of castile soap (mint-scented, if you have it) to a gallon of water and pour some in a spray bottle. Spray on bugs you find on indoor or outdoor plants. Make sure you rinse veggies before you eat them!

- Plant a row of sacrificial plants (radishes are good) around your garden to distract bugs from more precious crops





I'm going to assume that some of you out there are, like me, apartment dwellers. It has been years since I had my own yard; I spend a lot of time daydreaming about hammocks. Limited outdoor space is a part of the urban landscape - but that doesn't mean it should keep you from growing food! Luckily, container gardening is an option for almost everyone, and tons of fruits + veggies grow well in containers. Witness the **ABUNDANCE!**:



And now, the basics: you need a pot. Does it need to be a nice pot, or even a pot-shaped pot? Hell no! Pretty much any container that can hold soil, not rot away, and drain excess water can function as a planter. Depending on what plant you're growing, coffee cans, baskets, windowboxes, old boots, wooden crates, buckets, jugs and big sacks can all be utilized, as well as a host of other junk. Just make sure you can put at least two $\frac{1}{2}$ " drainage holes in the bottom. Also, choose a bigger container than you think you'll need - it needs to be

122.

big enough to accommodate a mature root system and wide enough so that the weight of the plant won't cause it to topple. Once you've got a sufficient container, line the base with newspaper to prevent soil erosion.

Secondly, dirt. Commercial potting soil is usually made of peat and other light, quick-draining stuff. These materials are weed- and disease-free, and they keep plants from getting waterlogged. The DIY version of potting soil is compost, or compost mixed with a bit of sand - check your seed packets to see if your seeds like sand in their soil. You yardless folks - check your local community garden to see if you can score some free compost.



Seeds for container gardens can be sprouted first or planted directly in their new home. Once you have some leaves sprouting, move the pot (or whatever) to the sunniest part of your house. Fruiting plants, like tomatoes, are especially greedy for sun. If you find that the sunniest part of your home = too much sun, you can move them. Because pots are awesome.

Since potting soil drains so quickly, container gardens need to be watered and fertilized more often than in-ground gardens. Water whenever the soil is dry under the surface, but not if only the first $\frac{1}{2}$ inch or so is dry. If your plants need a boost, give them manure tea once in a while.

Resources and further reading

♡ = favorites

General Herbal Health & First Aid

The Green Pharmacy, by James A Duke, PhD
(Rodale Books, 1999)

♡ The Backyard Medicine Chest, by Douglas Schar
(Elliot & Clark, 1995) ♡

Prescription for Nutritional Healing, by Phyllis
Balch (Avery, 2006)

♡ Cat's Claw Herbal, by Heron (self-published)*

Herbal Gynecology

♡ Hot Pantz: Do it Yourself Gynecology, by Isabelle
Gauthier and Lisa Vinebaum (self-published)*

Take Back Your Life: A Wimmin's Guide to Alternative
Health Care, by Alicia non Grata (Originally
published by Profane Existence Collective)*

Nontoxic Cleaning and Body Care

♡ Better Basics for the Home, by Annic Berthold-
Bond (Three Rivers Press, 1999)

The Naturally Clean Home, by Karyn Siegel Maier
(Storey Publishing LLC, 1999)

Herbal Homekeeping, by Sandy Maine
(Interweave Press, 1999)

*Available from Microcosm, www.microcosmpublishing.com

Clean House Clean Planet, by Karen Logan
(Pocket, 1997)

Vim and Vinegar!, by Melodie Moore
(Harper Paperbacks, 1997)

Baking Soda Bonanza!, by Peter E. Civillo
(Harper Perennial, 1995)

Gardening

♡
Compost This Zine, by Liz Defiance (self-published)*
♡

Home Composting Made Easy (self-published)*

Basic Gardening, by Louise Carter
(Fulcrum Publishing, 1995)

The Organic Suburbanite, by Warren Schultz
(Rodale Books, 2001)

Dave's Garden - www.davesgarden.com

- A very active online community with tons of
articles about all types of gardening

All Around DIY Amazingness

♡
Making Stuff and Doing Things, collected by
Kyle Bravo ♡ (Microcosm Publishing, 2005)

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**[PROLONGING + PRESERVING
THE THINGS WE LOVE]**

raleigh briggs



Make It Last: Prolonging + Preserving
What We Love

written and illustrated by Raleigh Briggs

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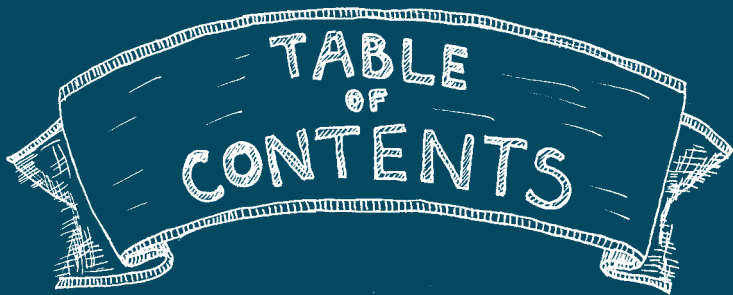


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P.S.: I have people to thank! Give it up for: Lacey Clemmons, Corinne Manning + Kathryn Higgins for their editorial guidance; Kim Reinaver for her canning expertise; ZAPP and its volunteers, both past and present; the Seattle Public Library, as usual; and my man Greg Brown, as always.

~ INTRODUCTION ~

Over the past few years, American culture has seen a big swing toward the sustainable, the home-grown, and the self-maintainable. What's even more incredible is that traditional skills like canning are being picked up by tons of different communities, from young professionals to radical collectives—and this is in addition to the rural and working-class folks who have been doing this stuff for generations. Can you remember the last time so many people were into the same thing? (Was it Justin Timberlake?) I don't know, but it's amazing.

It's hard to ignore the energy and momentum of the movement toward making or repairing things instead of buying them. It's not a giant revolution (yet), but for those of us who can afford to buy interminable versions of the same products, it represents a huge paradigm shift. Choosing to preserve is about realizing that the planned obsolescence and semi-disposability built into today's consumer goods are part of a marketing plan. They're not unavoidable facts of life. It's convenient for a manufacturer to sell a \$5 shirt with buttons that pop right off after two washes.

But it's not convenient for us, and we don't have to put up with it if we don't want to.

That's why this book is devoted to the art and science of preservation. We'll focus on clothing, food, and home repair, but if you like this stuff, why stop there? Learn to fix your car or your bike. Take a soldering class. The possibilities are endless! Preservation makes great economic and environmental sense, and unlike some of the more intensive DIY disciplines, it's available to everyone—even if you don't have time, space, or resources to sew clothes, grow food, or build stuff, you can take the clothes, food, and, uh, built stuff that you have and make them last longer. People are starting to realize not only that they can do this stuff, but that it's fun and fulfilling, to boot.

Since writing Make Your Place four years ago, I've had the unique experience of getting to know lots of people who want to explore DIY and add to their own skill set. It's been so inspiring to hear how resourceful, creative, and smart people are. I'm looking forward to hearing about the ingenious repairs you'll make around your own abodes. So

please, enjoy Make It Last, and keep those emails coming. (I got a new address just for you: raleigh.briggs@gmail.com)


P.S.! Whenever I'm exhibiting, a reader always approaches me and says something like, "I was running home and I realized we didn't have any laundry soap so I bought some instead of making it. I AM SO SORRY!" They apologize to me! I want to address that here, because it's so sad that people would think I would judge them because they bought soap for their family. Listen: DIY and self-righteousness have a long history together. There will always be people who are going for the gold in the DIY Olympics. But please! The goal is not to ever buy anything so you can achieve some mythical perfection. At some point in your life, you're going to buy a shirt instead of fixing an old one. That is fine! Whenever you think about the choices you're making, you're doing a good thing. So do what you can, and don't stress.



♡ ~ I believe in you. ~ ♡
♡

Chapter 1

CLOTHES

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In this first chapter, we'll be talking about clothes. Unless you wear seamless, zipperless,  indestructible coveralls (email me if you do!), you've had to deal with the fact that clothes are mortal. We love them, but they fail us in myriad ways. Whether you buy new or used clothing, you have to deal with the seam that busts when you bend over. The zipper that slips down to reveal your underpants to your coworkers. The cute and cheap outfit that turns out to be just ... cheap.

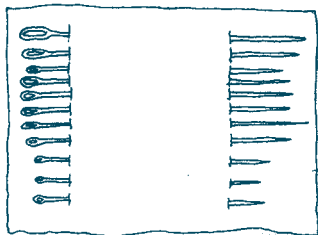
 All of these things are annoying, but none of them have to ruin your day. Even if you haven't sewn so much as a pillowcase, it's worth your time to learn a few basic clothing repairs. You don't have to buy new jeans every time the inner thighs wear out—just patch them up and keep rocking them! You'll save money, save those jeans from premature death in some landfill, and create something that is, in its own humble way,  uniquely yours. Your first few projects might look goofy, it's true, but they'll still look better than giant holes in your clothes. So let's get started.

SUPPLIES

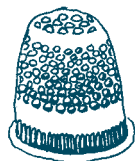
Just a few little things you'll need before you start sewing:

Needles

A good multipack of needles can get you through most DIY fixes. You'll need some thin needles (for delicate fabrics) and a few thicker ones for mending denim or canvas.



Thimble

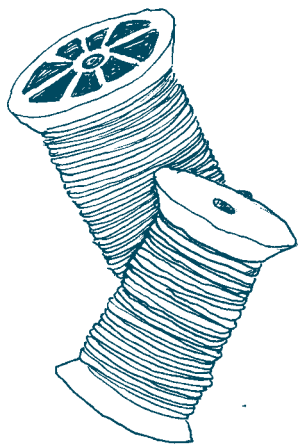


If you think you don't need a thimble, just try to hem some jeans without crying.

Thread

If you're just beginning to sew, the thread section of the fabric store can induce a feeling of "thread panic," a term I just made up. Thread comes in all different thicknesses, colors, and fibers, and it can be hard to know what to pick for your project.

If you're just doing basic mending and alteration, you should be fine with just a couple of spools. Cotton-wrapped polyester thread will give you the most versatility for your buck. It's strong, heat-resistant, and will work on most fabrics. Get a spool each of white, black, and whatever color is most dominant in your wardrobe.



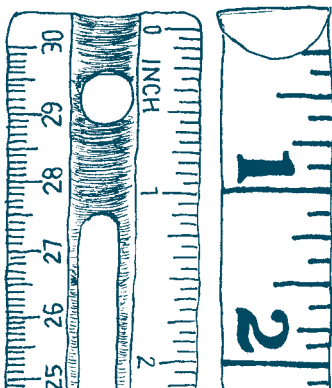
Seam Ripper

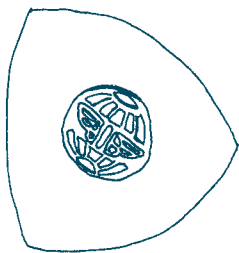
The sharp mandibles of a seam ripper undo stitches gracefully,

without tugging. Use the blunt-tip side to loosen a stitch, then flip the ripper over and use the sharp prong to cut the thread.

Measuring Tape + Ruler

The fancy clear rulers are especially nice for sewing. Any tape measure will do as long as it's flexible.



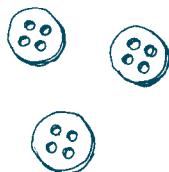


Tailor's Chalk

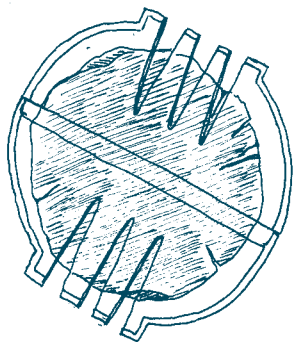
You can pick up a couple hunks of fabric chalk at your favorite craft store. Some of them even come with little brushes that erase the marks when you're done. If chalk's not your thing, you can also find markers that wash out.

Notions

These will depend on what sorts of clothes you like to wear, but a well-stocked notions stash usually contains two- and four-hole buttons, hook & eye sets, zippers, snaps, and patches.



Beeswax



Folks who hand-sew use beeswax to add strength and glide to their thread. To do this, hold one end of your thread against the wax, with your finger a couple inches from the thread's tip. Grab the short end of the thread with your other hand and pull the whole length of the thread across the wax. (Most commercial waxes have

holders with little guides to keep the thread from slipping off.) Do this a couple times so that the thread is nicely coated.

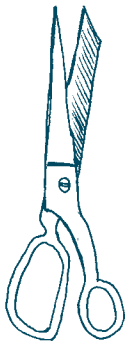
Next, run over your thread with a warm iron to melt the wax into the thread. This might seem fussy, but the ironing is important—it removes any waxy residue and creates a strong, tangle-free thread with plenty of glide.

Pins & A Pincushion

Buy a tin of straight pins with the little pearls on the ends. Keeping a couple dozen in a pincushion will keep you from having to pull a single pin from a pile of bloodthirsty ones.



Fabric Scissors



A modest but decent-quality pair is all you need. You needn't spend tons of money, but if you want your scissors to stay sharp, avoid using them to cut anything other than fabric. Paper, plastic, or cardboard can make the blades too blunt.

Quick Fixes!

Sometimes you absolutely don't have time to sew on a button, and that's okay. Walking around with buttonless pants, however, is probably not okay. You can avoid these little mishaps by creating an emergency mending kit, filled with Mcgyver-y supplies to hold you over until you can do some real mending. Reach for it next time your (totally hypothetical) jeans button pops off post-breakfast burrito and it's making you late for work.

A few things to add to your kit:

* safety pins for popped buttons + "librarian's gaps"

* Fray Check (a liquid plastic that stops fabric from fraying)

* Iron-on hemming tape or double-sided tape

* a few cute pins or pin-on buttons (for strategic stain coverage)

* a mini-stapler, for VERY quick n'dirty



hem fixes



Basic Knots + Stitches

Knots! And stitches! You need to learn a few of them. But don't be nervous. Hand-sewing does require a bit of motor skill, but mostly it requires you to be patient, or at least to have a good movie to watch while you're working. The fineness and evenness of your stitches will improve with practice, so jump right in!

If you already sew a bit, feel free to skip ahead. If you're a newbie, here are some basic stitches you should learn.

Starter's Knot

Every sewing project starts with a single knot. Beginning sewers tend to make their knots really big, hoping this will keep the knot from pulling through the fabric. But a big knot can get tangled in your other stitches. It also uses a bunch of thread that can be put to better use elsewhere. Also it looks weird!

So save yourself the trouble and keep your knot simple. Make a slipknot at the end of your thread. Take the needle through the loop and pull the rest of the thread through. Then, pinch the whole shebang between your thumb and forefingers, and slide the knot to the end of the thread until it's tight.

Tying Off

Again, don't waste your time tying tons of knots to secure your work. To make a knot that lies flat and doesn't bunch, first bring your thread and needle to the wrong side of the thread. Make a tiny stitch that's perpendicular to your other stitches, pull the thread most of the way through, then take your needle under the thread that's left. Pull the thread tight-ish and repeat with another stitch. Make sure your thread is secure, then snip the thread to $\frac{1}{2}$ inch.

KNOW YOUR KNOTS + STITCHES



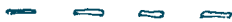
starter knot



tying off



straight stitch



basting stitch



blanket stitch



backstitch



overhand stitch



slipstitch

Straight Stitch

Use it to: join two pieces of fabric, make simple hems; gather fabric

As basic as it gets! Thread your needle, make a knot at one end, and push the needle from the wrong side to the right side of the fabric. Then, use your needle to weave through the fabric in a straight line, creating a few stitches. Try to keep your stitches even. Pull your thread through (try not to bunch the fabric) and repeat as needed.

Basting Stitch

Use it to: hold your fabric in place while you're sewing — like straight pins, but less pokey

A basting stitch is pretty much a long, loose straight stitch. When you baste, use a thread in a contrasting color so that you can easily find and remove the stitches later.

Blanket Stitch

Use it to: make a decorative edging; attach two pieces of fabric along their edges

Thread your needle and take it from wrong to right side through the edge of the garment so that the needle comes out the bottom.

Take the needle over the edge of the fabric (so it's behind the fabric again) and bring it through again at a point a little ways over and above from where you brought the thread through the first time. Move your needle so that it's inside the loop formed by the stitch you just made, and pull the thread through. If you're right-handed, you'll see that the stitch forms a backwards L. Lefties will see a regular L. Make another stitch by taking your needle over the edge to the back of the fabric, coming through to the front, catching the needle, and pulling through.

Backstitch

Use it to: mend seams; replace zippers

Backstitching gives you a tight, strong line without any gaps, so it's great for decorative stitching, too. A caveat: backstitching looks crappy from the wrong side of the fabric, so don't use it on anything that needs to be reversible.

To create a backstitch, start like you're making a straight stitch. Bring your needle up as if you're making a second stitch, but instead of bringing your needle forward along the seam you're

making, bring the needle back about a half stitch's length and insert your needle through the middle of the stitch to the back of the fabric. Angle your needle forward and bring the tip to the front about a half stitch's length in front of where you first brought the thread through. Pull the needle and thread through all the way.

Make the next stitch by bringing the point of your needle backwards again and inserting it from front to back at the halfway mark of your first stitch. Again, angle your needle forward and bring the point to the front a half stitch ahead of your last stitch. Pull everything through and continue like this until you're done.

Overhand Stitch/Whipstitch

Use it to: finish an edge; create a buttonhole

An overhand stitch is done over the edge of your fabric, rather than parallel to an edge.

Bring your needle up through the fabric about $\frac{1}{4}$ inch from the edge, then wrap it around the fabric's edge and back to the wrong side.

Bring your needle up again in a spot that's very close to your previous stitch and pull the

thread through. This way you'll create a tight row of stitches that "seal" the edge of the fabric in thread.

Slipstitch

Use it to: create an invisible hem

A very classy stitch that's great for making hems in delicate or fancy clothes. To make a slipstitch, start by holding your basted hem horizontally. Slip your thread under one or two threads from the outer fabric (the part that's not folded), and then, moving forward a little along the hem, pick up two threads from the folded portion of the hem. Head back up to the outer fabric, create a teeny stitch like before, then repeat with the inner fabric. Continue making this delicate little zigzag until your hem is complete.

TIP!: Are you having trouble making a straight line? You can use a ruler and tailor's chalk to create a guide before you start sewing.

BUTTONS

Even if you don't plan on ever making your own clothes, it's imperative that you learn how to sew on a button. Because inevitably, there will come a time when a missing button is what keeps you from wearing your favorite interview skirt, cardigan, catsuit, or whatever. Sure, a safety pin will do in a pinch, but come on.

Let's sew buttons!

Flat Buttons



If your button's destiny is to close a shirt, secure a pocket, or just look pretty, a flat button will do the trick.

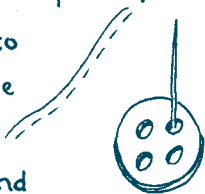
Step 1: Grab your garment, a button, a needle, and six inches of thread. If you're picky, make sure to choose thread that matches the thread used on the other buttons. Pick a thin needle that can easily fit into the holes of the button.

Step 2: Cut 6-10 inches of thread. Wax your thread if you like (see page 8). Thread the needle and pull half the thread through. Then, use an overhand knot to tie the ends of the

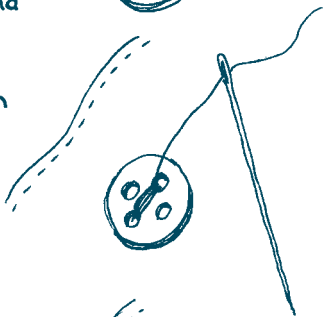
thread together.

Step 3: Pick where you'd like to place your button.

Step 4: Insert the needle into the fabric on the wrong side (the side that faces in toward your body). Pop the button on top and pull the needle through.



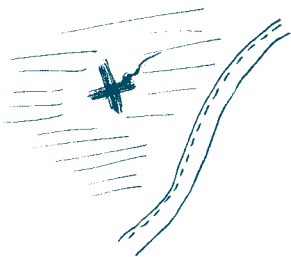
Step 5: Go back down through the opposite hole you came up through. Repeat! Repeat 4 or 5 times more.



Step 6: If your button has four holes, repeat steps 4 and 5 on the other two holes. End with your needle on the wrong side of the fabric and the thread pulled all the way through.



Step 7: Tie an overhand knot in the thread, as close to the fabric as you can get. Snip the thread. You're all done!



Shank Buttons



If your garment is made of thicker material (like denim or canvas), you should use a shank button. Instead of holes in its face, a shank button has a raised area or loop on the back. Shank buttons are also used for the flies of pants and other high-stress areas (heh).

When you're placing or replacing a shank button, upgrade from all-purpose to quilting thread—it's a lot stronger and comes in a billion colors, just like all-purpose.

Step 1: Start with about 2 feet of thread, a thickish needle, beeswax (if using), a thimble, and a small, clear button (optional).

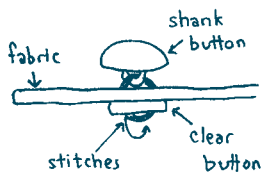
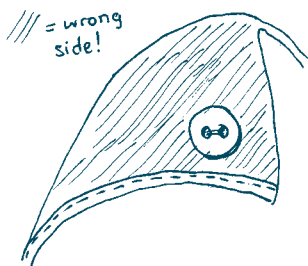
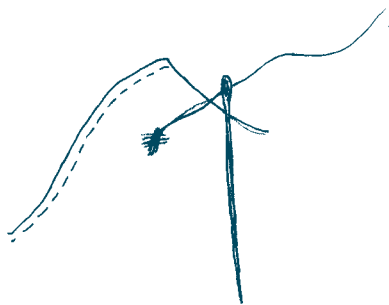
Step 2: Wax your thread (extra important if you're using all-purpose thread instead of something stronger). Thread your needle, pull half of the thread through, and knot both ends of the thread together, creating a strong double thread.

Step 3: Choose where you will place your button and bring the needle up from the wrong side of the fabric. Make a few small stitches over your chosen spot before you add the button.

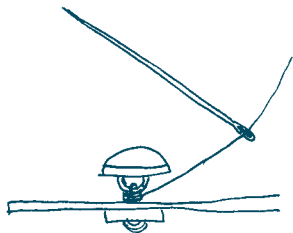
Step 4: Place the small, clear button on the inside of the garment, on top of the stitches you just made. Anchor this button with a few stitches. This will help add stability to your shank button and cut down on fabric wear later on.

Step 5: Hold your shank button in place on the outside of the garment and tack it in place with a few semi-tight stitches. Make sure you're sewing these same stitches in the clear button on the other side.

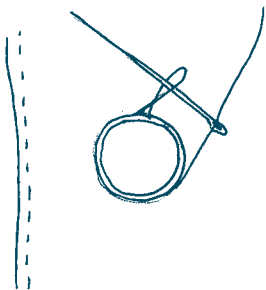
NOTE: Don't pull your thread tight when you make these stitches. If you can't help it, slide a toothpick under the button's shank while you stitch.



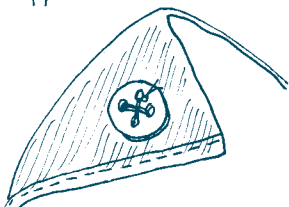
Step 6: After you have 5 or 6 stitches holding your buttons in place, pull the needle one more time to the fabric's right side, then wrap the thread around the stitches holding the shank in place. Do this several times.



Step 7: Make a teeny loop in the thread on the needle; hold it with a finger. Bring the needle around the shank and through the loop, then pull the thread tight. Repeat this a few times.



Step 8: Finally, bring your needle back to the wrong side, knot off + snip your thread.



TIPS! A lot of garments come with a spare button, either in a baggie or stitched into the garment in an inconspicuous place. Before you buy new buttons, check the tails and insides for a spare.

Also, when you spill ink on a shirt or its armpits rot out, cut off all the buttons before you scrap it. Now you have a free set of buttons. You're welcome!

Mending Seams

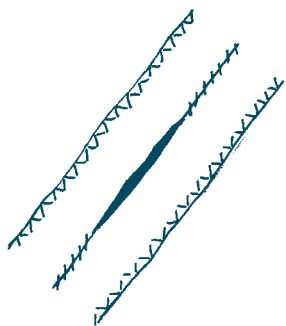
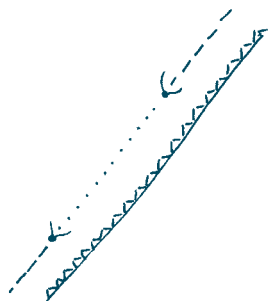
If you could choose a way for your clothes to break, you'd pick a busted seam. Fixing a seam is a piece of cake! The pieces of fabric are already lined up and held in place by the stitches that didn't bust, and most of the time you don't have to deal with damaged fabric. Seams are easy to fix even if you're not the world's greatest stitcher, so don't be intimidated by the prospect of having to sew in a straight line.

Prep

First things first! Check out your seam. Did the seam tear because the thread holding it together broke or because the fabric around the seam was too damaged to hold? If you're dealing with torn or damaged fabric, skip ahead to the section on patching. You'll need to patch over the missing bits first and then incorporate that fabric into your seam.

No damage? Sweet. Use a double knot to tie off the threads on either side of your open seam. The knot should be snug, but not so tight that it causes the rest of the seam to bunch up.

Trim the ends of the knots so that they don't poke through to the other side. This is important: A seam with uneven stitches can still pass as charming; a seam with squiggly threads poking out just looks dumb.



Press

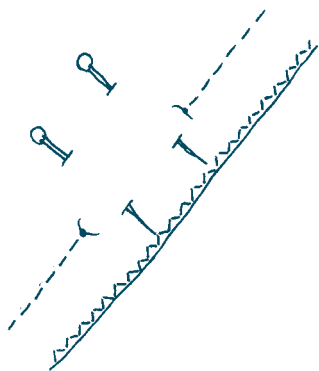
If you have time, press your seam open before you start mending. This will help you keep track of your seam allowances (the distance between the seam and the fabric's edge) and give you a neat, perfect seam.

If you don't care about looking perfect, I don't blame you. Read on.

Pin

Even if you're in a hurry, please don't forget to pin your seam before you start sewing. I can't stress this enough! Pins will keep the fabric together so you can concentrate on sewing a straight line and keeping your stitches even.

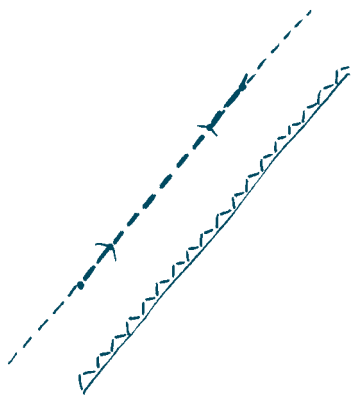
To pin, turn your garment inside out (if you hadn't already), find the busted part of the seam, and line up the edges of the fabric. Bridge the gap in the seam by placing pins perpendicular to the edge of the fabric, tips pointing out.



What? You're in a hurry AND all your pins fell into the toilet? Use clear or masking tape folded over both edges of the fabric.

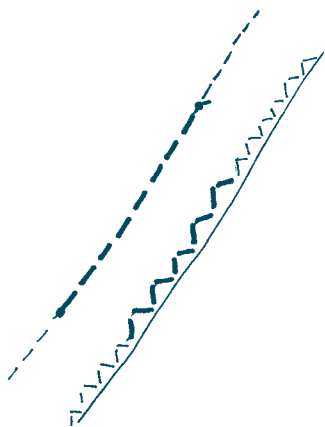
Stitch

Begin your stitching about $\frac{3}{4}$ inch before the missing part of the seam to ensure there won't be a gap between the old seam and your new one.



Then, just stitch a new seam where the old seam was. Use the holes of the old seam as a guide. Remove your pins as you work.

Use a backstitch or small straight stitches – whatever fits closest with the rest of the seam. Sew about $\frac{3}{4}$ inch beyond the gap on the other end, then knot and snip your thread.



Finish

Check the edge of your fabric. Is it finished with a zigzag or overhand stitch? If so, did these stitches come undone when your seam ripped? Keeping those edges unfinished can leave your fabric vulnerable to fraying.

If you have the time, replacing those finishing stitches with a quick zigzag or overhand stitch of your own will keep the fabric from unravelling. There's no sense in mending a seam just to fix it again when the fabric unravels!

P.S., you can also treat a fabric's edges with a drop or two of Fray Check, which you can find at the fabric store.

FABRIC HOLES

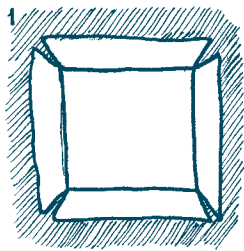
Torn or worn-through fabric is a different mending experience than, say, an unravelled seam. Because a hole can weaken the fabric around it, you can't just sew it up with a row of stitches. Instead, you have two options: patch it or darn it. Sewing on a patch is often preferable to darning the hole itself.

DO NOT be seduced by the lure of the iron-on patch! Iron-ons might seem easy, but the adhesive is always jacked, and your fabric + color choices are depressing. Patching is an art form, and those tan drugstore patches are the equivalent of Thomas Kinkadee paintings. Avoid at all costs!

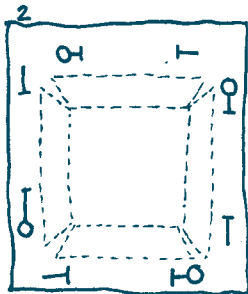
When you choose a patch, find a fabric that's similar to that of what you're mending. Match exactly if you can, but at least find something with a similar weight and stretch. As for color, that's really up to you! If you want an exact match, you can use fabric from the garment itself to patch the hole. Just sew up a seldom-used pocket (such as the back or coin pockets in a pair of jeans,) and cut a little fabric away from the layer underneath the pocket.

HOW TO PATCH *The Fancy Way*

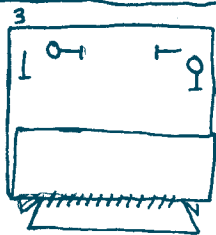
Step 1: Trim away the fabric around the hole until it's a nice square. Snip a $\frac{1}{4}$ inch slit in each corner and fold these flaps inside the garment so it forms a "frame" around the hole on the wrong side of the fabric. Iron these flaps so they stay.



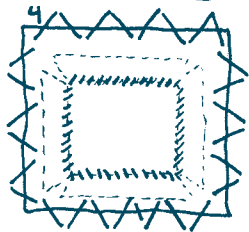
Step 2: Cut enough patch fabric to extend at least $\frac{1}{2}$ inch beyond the hole on all sides. If your patch and garment are printed, align them in a way that looks good to you. Iron the patch and pin it over the hole, matching the grain of the fabrics. Try not to stretch or bunch the fabric. You can also baste the patch in place.



Step 3: Thread your needle with a double length of thread and tie the ends together. Fold back the extra $\frac{1}{2}$ inch of patch fabric on one side, and using tiny diagonal stitches, sew the fold of the patch fabric to the folded edge of the garment fabric. Stitch all the way around the hole + knot off.



Step 4: Finish by tacking down the edges of the patch with little zigzag stitches. Only pick up a few threads with each stitch. Knot off and snip any loose threads. Done!

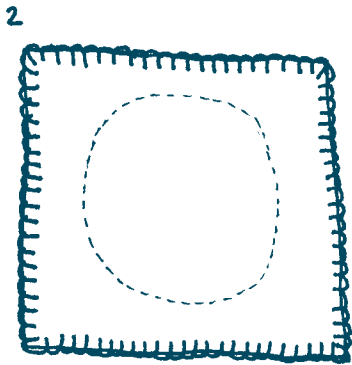
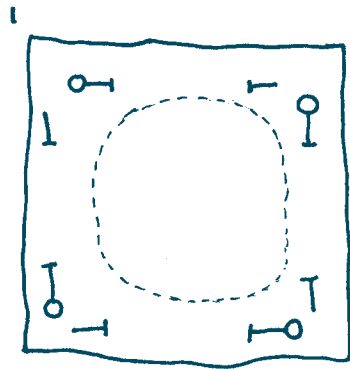


HOW TO PATCH THE QUICK & DIRTY WAY

AKA the punk-patch special. Who needs hidden stitches?

Step 1: Snip any loose or hanging threads from around the hole. Pin on your patch, matching the grain of the fabrics. Try not to bunch or stretch the fabric, if you can help it.

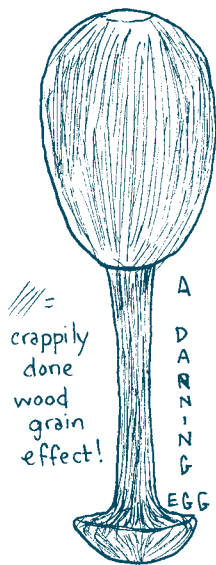
Step 2: Thread your needle with a double length of thread and tie the ends together. Start at one corner of the patch and bring your needle up from underneath. From there, stitch around all the edges of the patch using either diagonal stitches or blanket stitches. Try to keep your stitches even and loose enough to not tug on the patch fabric. End with your needle on the wrong side of the fabric and knot off. Done done done!



Darning Holes

What, you're not satisfied with just slapping a patch on your pants and calling it a day? You want to actually *fix* the hole? WELL FINE.

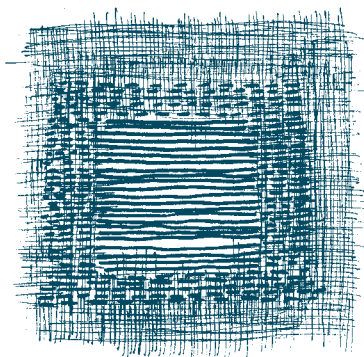
When you darn a hole, you're using thread to weave a tiny bit of cloth to replace what's been lost. This is a little tedious to accomplish, but if you want to keep wearing that favorite pair of socks, it's totally worth it.



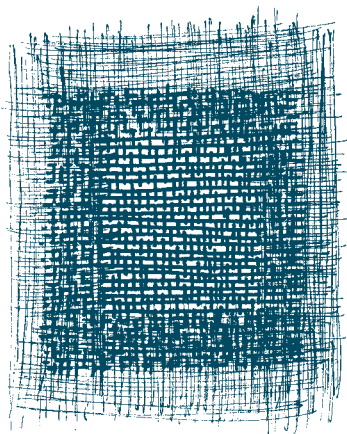
Darning is easiest if you acquire a thing called a darning egg. It looks like a chicken egg with a handle attached.

The egg works by providing a surface for the fabric to lie on top of, so that the edges of the hole don't get distorted. If you don't have a darning egg, you can place your non-sewing hand underneath the fabric — just try not to stretch or bunch the fabric as you work.

Step 1: Place the darning egg (or your hand) underneath the hole.



Step 2: Using strong thread and a darning needle, create a running stitch that begins beneath and to one side of the hole and goes straight across. When you're a little beyond the opposite edge of the hole, turn around and start a new stitch in the opposite direction. Work back and forth until you have a little square of horizontal stitches that extends beyond the hole on all sides.



Step 3: Without tying off, shift directions, and begin to weave by creating a vertical line of stitches over and under the horizontal stitches. Work back and forth, moving left to right (or vice versa) until all your horizontal stitches have been covered by vertical stitches. Knot off your thread and snip. Voila!

Hemming

Ah, hemming! The ultimate wardrobe-stretching skill. A good hem turns a bunched, ratty-cuffed pair of pants into shorts you can wear for another few years. It's an essential skill for thrift shoppers, swappers, hand-me-downers, and anyone else who hates shopping for clothes. Learn to hem and watch the textile world open to you like a giant, machine-washable oyster.

Equipment:

seam ripper	buddy and/or dress dummy
tailor's chalk	iron and ironing board
straight pins	scissors
yardstick	needles
thread—hem thread and a contrasting color for basting	

Step 1

Use a seam ripper to gently release the existing hem. Pull out all the little thread squiggles as best you can without damaging the fabric.

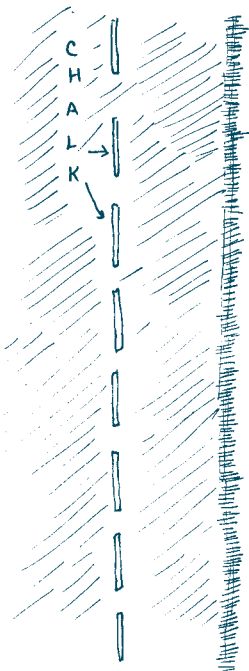
Step 2:

Put on the garment along with shoes you plan on wearing with it. Grab a friend and some tailor's chalk to mark where you want your hem to fall. If you're hemming a skirt or dress, use a yardstick to measure the distance between the hem and the floor—make sure it's even all the way around. Mark the hem using chalk or straight pins placed parallel to the bottom edge of the fabric.

NOTE: No friends around? Consider getting yourself a dress dummy.

Step 3: Now, undress again and check your hem marks to make sure they're even. Do both pant legs match up? Does the hemline on that skirt wobble a little?

If your marks are uneven, use a clean toothbrush (or your finger) to erase the mark, and redraw it. Pin the new hem in place, put the garment back on, and check the hem again. Readjust as needed.

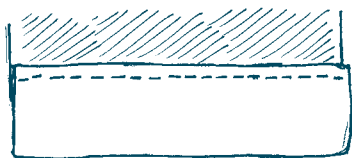
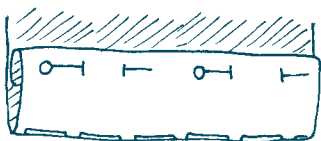
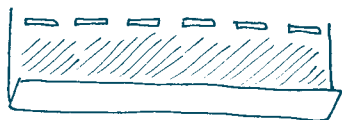
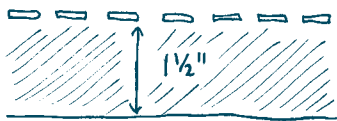


Step 4: Once you're happy with the hem length, remove the pins and trim the bottom of the skirt/pant legs to their new length plus an extra 1 1/2-2 inches for your hem allowance.

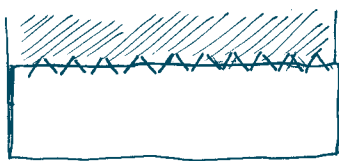
Then, create your new hem! Fold the bottom edge of your fabric up 1/2 inch, tucking the fabric inside. Press this lightly, then fold the fabric again up to the new hemline. Press again.

Your chalk line should be on the very bottom edge of your garment. Pin the hem in place and baste to tack it down.

Step 5: Choose your stitch! If you're hemming casual clothes like jeans or a sundress, topstitch your hem using very small, even stitches. Make sure to choose a different color of thread than your basting thread. Once you're done, tie off



VS.



your thread on the wrong side of the fabric and remove your basting stitches.

If you're hemming dress pants or a garment on which a topstitched hem would look goofy, you should opt for an invisible hem. Baste first, then use a slipstitch to sew your new hem. See page 16 for instructions on how to create the discreet and lovely slipstitch.

Tips and Tricks!

36

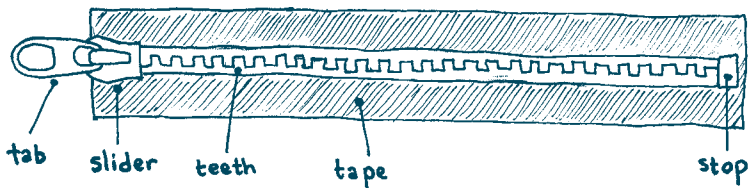
★ If your hem looks a little fat, you can blame that first fold you made in your fabric. We do this because the fabric's raw edge can unravel if it's left hanging out. If you finish your edge with a quick overhand stitch, you can skip that first fold and thin out your hem.

★ Hems in knit fabrics like jersey are especially prone to coming undone. Hedge your bets by sewing twin hems, parallel to each other and about 1/4 inch apart.

★ Puckered hems can usually be pressed or steamed out.

Fixing a Zipper

Thousands of years of clothing technology and the zipper is still around? Ah, well. Here's how to resolve a few of the most common zipper mishaps.



Sticky Zippers

First, if there is anything actually sticky on your pants, please wash it off. If your zipper still isn't working smoothly, you'll need to employ a non-messy lubricant to get the slider moving again. Your best bets are a bar of soap or the lead of a graphite pencil. Rub the soap or pencil up and down both sets of teeth, then zip and unzip a few times to get the stuff equally distributed. Wipe off any extra soap or graphite with a clean cloth. You may have to re-lube every few washes.

Slippy Zippers

If your zipper won't stay up, hold it in place with a finger and then shoot the teeth with a quick burst of hairspray. Yep. Try just a tiny bit at first to see if that fixes the problem, then add more if you need it. If you do this to a garment while you're wearing it (I have done this many times) you may want to shield the rest of your outfit with a towel.

Stuck Zippers

This one's pretty easy. There's probably a thread or a bit of fabric caught in your zipper. Grab some tweezers and fish it out. *Don't* try and force the slider past it. Be patient! Tug the slider around gently until you can see the obstruction and remove it.

No Tab (or Broken Tab)

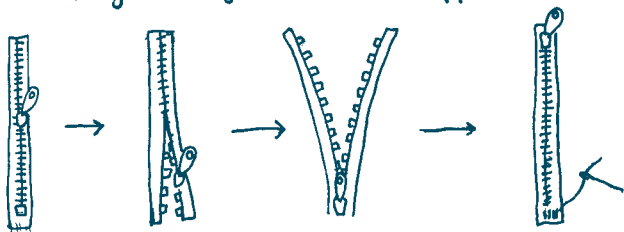
You can fix a broken tab by squeezing the loop closed with some needle-nose pliers, but honestly? My favorite solution is to just replace the tab with a little bit of ribbon, canvas, or leather.

Slider Comes Off Part-Way

Step 1: Use a seam ripper and carefully undo the stitches that tack the zipper tape to your garment. Use needle-nose pliers to remove the metal stop from the bottom of the zipper. Slide the slider off of the zipper.

Step 2: Carefully realign the teeth one by one, and feed the teeth back into the slider. Go slow to make sure that the teeth are locking together properly. Zip the zipper up all the way.

Step 3: Use a needle and strong thread to make 10 or so tight stitches where the metal stop used to be. This will function as your new stop. Knot your thread well and snip it close so it doesn't get tangled in the zipper.



Gaps Below the Slider

This one is the worst! Sometimes you can hold one set of teeth firmly and nudge the other side up gently until they realign. But when things really go awry, you need to disassemble the bottom of the zipper.

Step 1: Grab your needle-nose pliers and remove the metal stop at the bottom of the zipper.

Step 2: Move the slider carefully down the zipper until it's right below the last pair of teeth. Don't remove the slider from the zipper, though!

Step 3: Smooth out the sides of the zipper and line up the teeth one by one. Feed the teeth slowly through the slider until you can see that they're locking up below.

Step 4: Create a new stop using strong thread, like you did in Step 3 on the previous page (the Slider Comes Off Part-Way section).

Waterproofing Canvas

Canvas is a beautiful thing, but when it mingles with rain, it can quickly become a mildew-speckled, sour-smelling disgrace. Removing mildew is probably not going to happen (ADMIT IT) so it's smart to avoid the nasty stuff altogether. It's pretty easy to make your own waterproofing formulas that you can use on tents, rucksacks, and any other piece of canvas that gets routinely exposed to the elements.

* Before you head off with that jug o' shellac, some caveats:

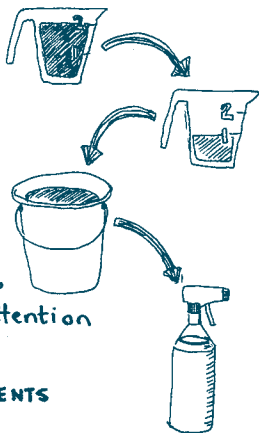
1. Waterproof canvas will keep rain off your back, but it will keep *in* all your sweat and body heat. So think long and heartily before you waterproof clothing.
2. Natural \neq friendly. Unlike the recipes from *Make Your Place*, some of these formulas aren't exactly nontoxic. Do your waterproofing outside, wear gloves and old clothes, and keep kids and animals from getting into what you're making.
3. Don't inhale, eat, mainline, or otherwise absorb your waterproofing formulas.



WATERPROOFING SPRAY

*makes enough for one smallish tent

Mix together 2 cups soybean oil and 1 cup turpentine in a small bucket. Once the two liquids are blended, pour it in a spray bottle (use a funnel) and spray it onto your fabric. Or, keep the stuff in the bucket, and paint it onto the canvas with a brush or sponge. Use half the batch on one coat, let the canvas dry, and then do a second coat. Pay special attention to the seams and corners.



WATERPROOFING SOAK FOR TENTS

This option is messier than the spray, but if you'd rather dip your tent, here you go:

Step 1: Dissolve a pound of laundry soap (use a store-bought one with detergents in it) in two gallons of hot water. Stir well, until the soap bits are totally dissolved. Dunk your whole tent in the liquid, wring out the excess, and then dry it on a line or on the ground in a sunny spot.

Step 2: Dissolve a half pound of alum (check the hardware store) in two more gallons of hot water. Dunk the tent again and this time let it sit for a few hours. Wring it and let it air dry.

For maximum waterproofage, you should repeat this process every couple of months (if you use your tent often) or whenever you feel like it's getting leaky.

WATERPROOFIN' LEATHER



Lanolin is an oily substance derived from sheep's wool. It's an excellent waterproofer and pretty eco-friendly, too. (Just do a little research when you're shopping to make sure your lanolin is humanely obtained.) To use it, rub a bit into the leather with a soft cloth. Keep buffing until the leather feels dry (not greasy) to the touch. This also keeps the leather supple, which is nice.

If you have leather stuff but desire non-animal-derived waterproofing for it, petroleum jelly is a decent option. It's not earth-friendly, of course, but it's effective and cheap.

NOTE: Don't use either of these on suede — the oils will ruin the suede's nap. Honestly, suede is such a pain in the ass. Don't wear suede.

WATERPROOFING

LIGHT NATURAL FABRICS

linen, hemp, and light canvas

NOTE: This may change the texture or appearance of your fabric.

Step 1: Gather a disposable paintbrush, some paper towels, a clean rag, and some beeswax.

Step 2: Melt the wax (stove or microwave) and paint it onto your fabric. Use paper towels to mop up leftover wax in the pan while it's still warm.

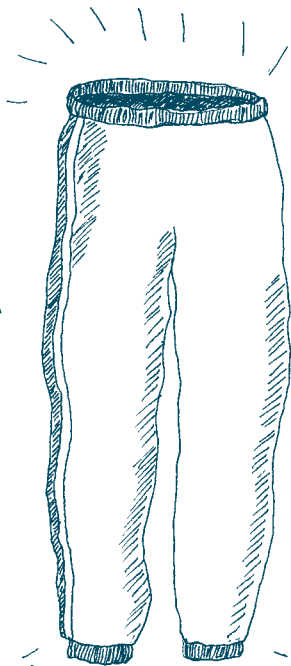
Step 3: Let the wax set overnight — I suggest laying it on a layer of old paper bags — and in the morning, buff the fabric with the rag.

WATERPROOFING NYLON

To waterproof nylon, you can use beeswax and the same method as for light natural fabrics. It might help to stuff the legs or arms with plastic while you're applying the wax, so that the hardening wax won't "glue" the layers of fabric together.

You also have your choice of vegan alternatives! Linseed oil or jojoba oil can be applied to a clean rag and then buffed into the nylon. Let the fabric sit overnight (or until it feels dry), and apply more coats if you so desire.

NOTE: You can get linseed oil from the hardware store and jojoba oil from the body care section of the health food store. If you decide to use linseed oil, make sure it's 100% pure linseed oil without any chemicals added. Also, linseed oil makes fabric stiff and sort of unattractive, so it's probably better for a backpack, bike cover, or tarp.



☆ waterproof ☆
jogging pants!

Sewing + Mending Resources

Martha Stewart's Encyclopedia of Sewing and Fabric Crafts (really, it's great)

by Martha Stewart

New York: Potter Craft, 2010

Stitch 'n' Fix: Essential Mending Know-How for Bachelors and Babes

by Joan Gordon

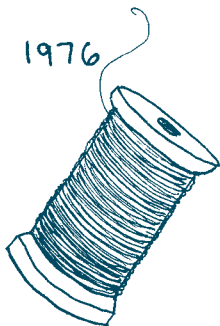
Lewes: Guild of Master Craftsman, 2009

Very Basic Book of Sewing, Altering, and Mending: 999 Pictures Show You How

by Violet Kathleen Simons

New York: Sterling Pub. Co., 1976

www.learningalterations.com



chapter 2



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You know what's awesome? Growing food. And eating food. What's not quite as awesome?

Figuring out what to do with the 50 lbs of zucchini getting flabby in your fridge. Never fear! This chapter is all about what to do with those delicious windfalls.

A lot of these processes will be familiar to many of you. Canning in particular is having a resurgence, and for good reason. It's really fun, delicious, and makes for great socializing if your friends are willing to help. That's the gift of DIY: it gives you a shared experience that lasts a lot longer than the quick buzz of a trip to the supermarket.

NOTE: Please play it safe whenever you're preserving food. That means using fresh ingredients, keeping everything clean, sterilizing equipment when you need to, and paying extra attention to food temperatures. Some of the processes in this chapter can take a long time, but cutting the steps short can lead to food that's unsafe to eat. Use your best judgement!

♥ Take care of yourself and each other. ♥

Storing Veggies

If you've ever tended a garden, you know that some years you might harvest nothing but three seedy, shrimpy cucumbers; other years, you might end up with more warty heirloom squashes than you know what to do with. It's the blessing and curse of every home garden. It's okay, though—if you're having a bountiful year and all your neighbors are *sick of your damn zucchini*, there are still plenty of ways to keep your harvest fresh until you eat it.

Preplanning Tips

Be realistic about what you can eat. It's fun to try new things in your garden, but if you're sowing a high-yield crop, take a moment to consider whether you'd be willing to eat it a couple times a week. Doesn't sound so appealing? Consider bartering or donating your excess veggies.

Make your own veggie dungeon. For a few of these methods, it helps to have a root cellar or something of that ilk, but any dark, well-ventilated space will work. Your veggies need to be kept away from heat and light, and many of them need a little humidity to keep them from withering. If you

have a dark cabinet or other space, install a thermometer inside so you can monitor the temperature, and make sure there aren't any heating vents or heat sources nearby. If you're planning to store plants that like a little humidity (like carrots and turnips), you might want to add a humidifier or a few slightly damp towels that you can regularly replace and check for mildew.

Clean out your freezer or root cellar before you harvest. Any storage prep or preservation should happen as soon as possible after the plant is picked to preserve the fresh flavor and helpful enzymes of the food.

Harvesting

Handle with care. Fresh fruits and veggies are delicate, and unblemished specimens will store much better than bruised ones. Use a light touch to pick and clean your harvest, and throw out anything that's moldy or buggy.

Give underground-dwellers a little light. When onions, garlic, potatoes, and other below-ground edibles are dug up, their skins are still moist. Storing these freshly dug can lead to rot and mold. Instead, dig up these foods on a dry, sunny day and let them sit on the surface of the garden

for a few hours afterwards. This will help their skins harden a bit, which will help them stay mold-free for longer.

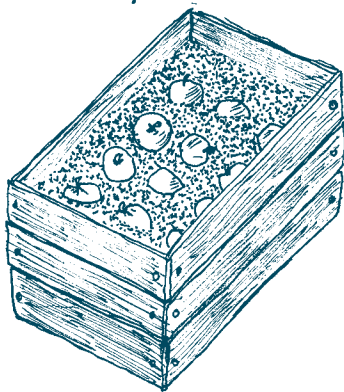
Storing Produce

Crate apples, pears, + roots

Most hardy fruits can be stored in wooden boxes on the shelf of your root cellar or storage area.

The key here is to keep the pieces from touching each other, to protect the fruit from rot or fungus. One way to accomplish this is to wrap each piece in waxed paper, parchment, or even newspaper. Pack them in a single layer, pad with crumpled paper, and repeat. If you're more ambitious, you can swap the paper for barely moist sand or dry sawdust.

The sand/sawdust route also works for carrots, beets, and other roots. Brush any excess dirt off the roots first (don't wash them), and lop off the greens to keep them from pulling nutrients from the root. Make a thin layer of sand on the bottom of the crate, then lay down a layer of roots, making sure the roots don't touch each other. Add sand around and onto the roots, and repeat.

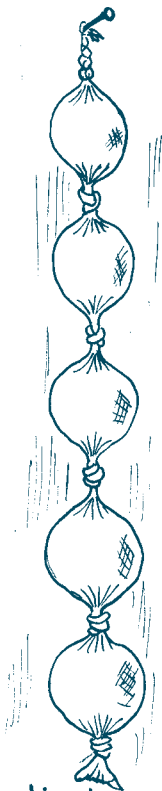


Hang pumpkins, squash, onions, and garlic

Easy and fun! You can get really creative with your hanging techniques (garlic garlands!), but storing these long-storing veggies can be as simple as dropping the bulbs or squashes into an old pair of stockings, tying a knot between each bulb to keep them from touching, and then hanging the whole shebang up in your root cellar. If it doesn't look nice enough, use prettier stockings. ☺

Bag potatoes

Potatoes keep well in a plain old paper bag, as long as the humidity is kept as low as possible AND they're kept away from light. If you live in a humid climate, you can cure your potatoes first by letting their skins toughen in the sun for a few hours before you store them. Don't wash before you bag — just brush off the excess dirt with your hand or with a dry brush. If you're worried about sprouting, toss an apple in the bag with the potatoes. It works, somehow.



Dry beans, fruits, mushrooms, peppers, and tomatoes

Drying a food obviously alters its appearance and texture, so it's not ideal for every purpose, but dried food does last a really long time. It saves space and weight in your pantry, kitchen, backpack, or whatever.

I'm not going to include instructions for dehydrators here, because I don't own one. I'm sure it's a lovely tool to have, but it's not absolutely necessary. All you really need is an oven, some counter space, and a day or two to let the process happen.

Maybe you're thinking: "doy, Raleigh, why can't I just leave my fruit in the sun?" Well, you can. It just takes longer, and you need reliably dry, sunny weather the whole time. So if you know you're gonna have a week without a cloud in the sky, go for it. Otherwise, use your oven like so:

Bean pods should stay on the plant until they're yellow and brittle. Then, cut down the whole plant and hang it up until it's completely dry. Sort through all the dry foliage, pull the beans out of their pods and let them dry indoors on baking sheets for a few more days. From

there, you can pour them into airtight containers and keep around until burrito day.

Fruits (including tomatoes) are best dried in a warm oven (between 110 and 130°F). Slice apples and pears thinly. Berries and seedless grapes can be halved (if large). Tomatoes and stone fruits should be halved (and pitted, if applicable). Whatever you've got, spread it out on a baking sheet, sprinkle with sugar (optional—use salt for tomatoes) and dry in that warm oven for a day or so.

The fruit is ready to store when it looks and feels dry. You shouldn't be able to squeeze any juice out of it. Once it's fully dehydrated, keep the fruit in airtight jars. Eat it as-is, bake with it, or reconstitute it in a little boiling water.

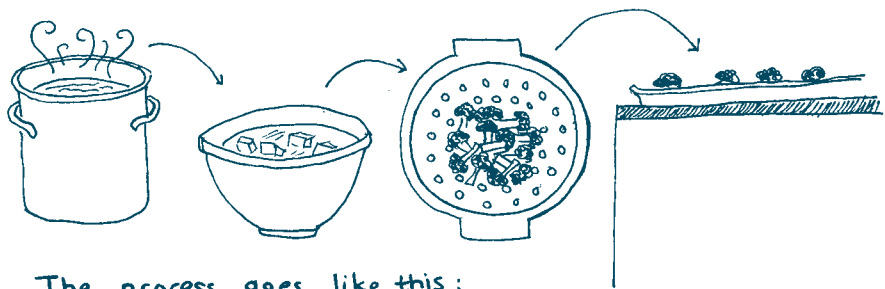


Mushrooms can be dried the same way as fruit (skip the sugar). Slice the bigger mushrooms and keep the little ones whole. You can also use a needle and cotton thread to string sturdier mushrooms on—to a garland and hang them up to dry. Cute!

Peppers can be dried like fruit in a 140° oven, OR you can string them up in bunches and let them dry in a warm, ventilated area.

Freeze peas, beans, corn, and other delicacies

Spring and summer's eager, plentiful veggies don't store well, so freezing is a good option. As soon as possible after your harvest, create a little assembly line like so: Have a big pot of water boiling on the stove; a bowl of ice water close by; a colander by the sink; and a baking sheet on the counter.

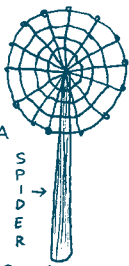


The process goes like this:

Step 1: Clean and prep a small batch of veggies.

Step 2: Blanch the veggies in water for 1-2 minutes. For bigger chunks like broccoli florets, blanch a little longer. Corn on the cob should boil for at least 5 minutes.

Step 3: Using a spider, tongs, or a slotted spoon, remove the veggies from the boiling water and dunk them into the ice water.



Step 4: While the first batch is cooling, prep the second batch and add those veggies to the boiling pot. Start your timer!

Step 5: Remove the veggies from the ice bath and let them drain in the colander.

Step 6: Continue like this until all the veggies have been blanched and cooled. Dry the veggies in the colander with a towel and then spread them on the baking sheet in a single layer.

Step 7: Pop the baking sheet in the freezer. This will allow each chunk of vegetable matter to freeze separately, eliminating any clumpy masses of frozen crap later. Once frozen, pop everything in plastic bags and label them.

Clamp a ton of root vegetables

Do you have mild winters and a veritable buttload of root vegetables? Congrats! Clamping might be your jam. A clamp is very literally a food pyramid, created outside and covered with earth and

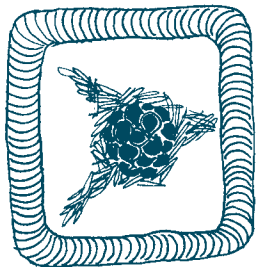
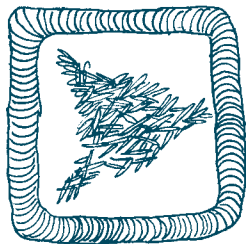
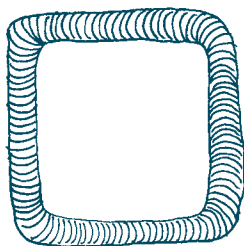
straw. This is a little impractical for most people, but if you have a large garden (or a small farm), it's a great, traditional way to store tons of food without encroaching on anyone's living space.

To make a clamp, you'll need a bare patch of ground and loose, dry-ish soil, plus a shovel and some dry straw. Harvest your roots and let them sit on top of the ground while you site and start building your clamp.

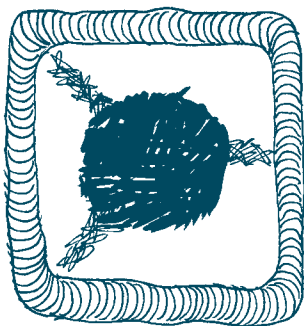
Step 1: Pick a spot that tends to stay dry (under an eave is good), and dig a trench around the area to keep the clamp site from getting soggy.

Step 2: Make a nice layer of straw for your veggies to rest on. Add a couple of "legs" to the straw layer by building little tunnels outward from the main pile.

Step 3: Pile the roots on top in a mound shape and cover with more straw. Let the clamp sit for 24-48 hours to allow any moisture from the roots to evaporate.

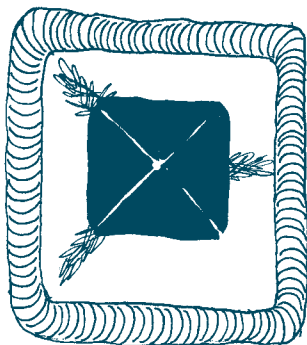


Step 4: Using a small shovel or spade, pile earth on top of the clamp. Leave the legs uncovered—they'll act as vents to keep air circulating around the roots. Build the clamp in a pyramid shape until you've added about 5 inches of dirt on every side.



Step 5: Pack the top layer down nicely and keep the walls steep so that any rain that hits it will roll right off.

AND NOW YOU HAVE A
CLAMP!



Crap! My carrots have gone limp. ñ

* To revive flabby vegetables like carrots, celery, potatoes, or lettuce, wash what you've got and then soak those suckers in ice water + 1 T vinegar for up to an hour. Should be firm and sprightly by then.

drying herbs

Drying herbs is a simple, effective way to preserve most of their taste, color, and medicinal properties. Dried herbs might not taste exactly like fresh ones, but in the middle of winter a little bit of summery flavor goes a long way.

As for process, you've got a veritable glut of options. But you'll want to start by:

Prepping Herbs for Drying

* Harvest herbs when your plants are preparing to blossom. The plant's leaves will be full of essential oils, which is what you want.

* The best time to gather herbs is in the morning after the day's dew has evaporated. Mid to late summer is perfect, because the days will be warm and dry and most leafy herbs will be at their peak.

* Herbs should be cleaned carefully to avoid scrubbing off any aromatic oils.

A rinse in cold water will do the trick.

Afterwards, gently shake the herbs and let them air dry completely. Pick off any dead or gross leaves and compost them.

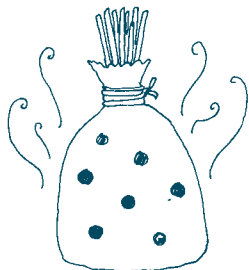


* Once your herbs are dry, they should be stored in an airtight container away from light, heat, and humidity. You can crush them or keep them whole.

Bunch Drying → for herbs with lengthy stems

Step 1: Snip and wash your herbs.

Step 2: While the herbs are air-drying, grab a paper bag and open it up. Use a pokey instrument (knitting needle? BBQ skewer?) to punch several holes in each side of the bag.



Step 3: Bundle your herbs and tie the stems together with twine. Stick the tops of the herbs inside the bag and gather the top of the bag around the stems. Secure the top of the bag with more twine.

Step 4: Hang the whole contraption somewhere warm, well-ventilated, and away from direct sunlight. (The doorway of your kitchen might be perfect.) The bag is optional, honestly, but it will provide further sun protection and keep the herbs from getting dusty.

Flat Drying → for seeds + herbs with short stems

Step 1: Prep, wash, and dry your herbs.

Step 2: Lay the herbs in a single layer on a baking sheet (or two). Cover the herbs with a clean tea towel and place the tray in a warm area where it won't be disturbed.

Step 3: Stir the herbs every few days to make sure they're drying evenly.

Cool Oven

↪ for large quantities of herbs + for impatient people

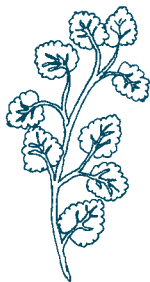


Follow steps 1 + 2 of the flat drying method. The warm place you'll use will be your oven, heated to only ~180°F. Prop the oven door open a little and leave the herbs there for a few hours. Stir the herbs gently every hour to make sure they're not sticking, scorching, or drying unevenly.

Even Cooler Oven → for non-bakers

*NOTE: Needs a gas oven

Follow the directions for the cool oven method, but don't turn the oven on. Leave the herbs in there for a day



or two and the pilot light will dry them out.

NOTE: This method obviously works best if you don't bake a lot. Make sure to take the herbs out of your oven before you use it or else: scorch city.

Microwave → for woody herbs



Step 1: Spread clean, ABSOLUTELY DRY herbs on a paper towel.

Step 2: Nuke the herbs on high for 1 minute. If the leaves are still supple, nuke for 30 seconds more.

Step 3: Repeat step 2 until the leaves are dry and brittle. Let them cool on the counter.

NOTE: You really have to do this 30 seconds at a time to prevent fire and scorching. ^{BE} PATIENT!

Freezing → for when drying won't cut it

Dry basil or cilantro will do in an absolute culinary emergency, but let's face it: they suck. So what's a gardener to do? Freeze those suckers fresh + preserve that flava. After you prep, chop the herbs + freeze them in a single layer on a baking sheet.

OR! Blend the herbs with a little water, broth, or oil and put one teaspoon in each section of an ice cube tray for pre-measured herbs at the ready!



Tangent: one of my first forays into DIY herbal work involved sticking a few sprigs of sage into an old bottle of vinegar from the kitchen. I didn't eat a lot of salad back then (I was a teenager), but I used it in my bathwater + on my zitty face and it was just fabulous. Herbal vinegars: so simple even a 15-year-old idiot can make them. Anyway.

Herbal vinegars capture the flavor of an herb in a tasty, shelf-stable liquid form. They're perfect for using in marinades, vinaigrettes, or on fresh fruit. Or, as my story suggests, you can use them for cosmetic or medicinal applications.

To make herbal vinegar, all you need to do is infuse a good quality vinegar with fresh herbs and let it steep in a dark place for about a month so all the flavors of your concoction can blend. Then, strain out the solids and let it sit for another week or two until the flavors are pleasingly mellow.

The proportion of herbs to vinegar is important, but it's not set in stone. Start with a few big sprigs of fresh herb per cup of vinegar, and

let it steep for a couple of weeks. If it still tastes weak, you can add a bit more.

The type of vinegar you use depends on what you're using the finished product for. Apple cider vinegar is full of nutrients and is perfect for cosmetic and medicinal blends, but the taste is a little too strong for most people. White wine, red wine, sherry, and rice vinegars are great bases for culinary herbs.

Herbal Vinegar Ideas

- ★ white wine vinegar + chives, sage, thyme, or rosemary (+ lemon peel?)
- ★ red wine vinegar + basil or oregano, or really any Italian herb
- ★ sherry vinegar + tarragon or ramps
- ★ apple cider vinegar + fresh raspberries or strawberries



HOT TIP: Want something a little stronger? Swap the vinegar for decent vodka, brandy, whiskey, or rum. Steep for a month, strain, then make into cocktails that cost \$10 each.

Herbal Syrups & Honey

True fact: An herb-spiked simple syrup or honey will take your next batch of cocktails to the NEXT LEVEL. Also going to the next level: lemonade, iced tea, soda water, pound cake, and anything else that calls for a glaze or liquid sweetener.

Herbal syrups are super easy to make, and the recipe multiplies well, so you can whip up a batch whether you have bushels of herbs or just a few sprigs. So next time you find some extra-fragrant rosemary growing on the sidewalk, grab it—you won't regret it!

Basic Herbal Syrup

1 cup sweetener, like sugar or agave

1 cup water

A dozen or so herb sprigs, or a big hand-

-ful of fresh leaves.

Step 1: Stir water and sugar together in a small saucepan and bring to a boil on the stove. Stir until all the sugar is dissolved. If sugar crystals form on the sides of the pan, wet them down with a wet pastry brush.

Step 2: Add the herbs and crush them into the pan with your spoon. (Don't bruise them with your hands — you want the oils to release into the sugar mixture, not onto your hands.) Cover the pot, and let the herbs steep for up to an hour.

Step 3: Using a sieve and a funnel, strain your syrup into a jar or a bottle with a tight-fitting lid. Leave an inch or so of headspace in the jar, in case you decide to freeze the syrup later. Press the remaining herbs with your spoon to get the last drops of syrup out, then toss the herbs in the compost bin.

* herbs to try *

- * rosemary
- * thyme
- * rose petal
- * violet
- * lavender
- * lemon verbena

Step 4: Label your syrup! This will keep for up to a month in the fridge or a year in the freezer.

Herbal Honey.

- 2 cups light-flavored honey, like clover
- 1 tablespoon of fresh herbs, ground well
(or you could use 1 teaspoon dried)

Cheesecloth

Step 1: Wash and prep your herbs, then tie them up in the cheesecloth.

Step 2: Put the honey and herbs into a heavy-bottomed pot and warm it over low heat. If you're using raw honey, heat the honey only until it's warm.

Step 3: Pour the whole shebang into a mason jar, seal it up, and let it sit in a dark place for two weeks (longer for more intensely flavored honey).

Step 4: Heat the honey again; remove the herbs and squeeze out any honey. Strain the honey back into the jar.

Herbal Blend Ideas

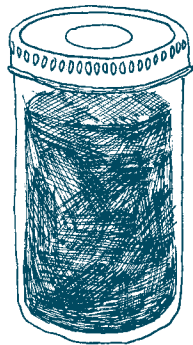
- ★ For tea parties: lavender, rose petal, or fennel seed
- ★ For colds: lemon balm, rosemary, or mint
- ★ For bedtime: chamomile or lavender

CANNING

Canning is arguably the most popular form of food preservation right now, and for good reason: homemade pickles, preserves, and jams are among the most delicious things you'll ever eat. I am completely biased. But if you grow great produce or know where to find it, there's nothing more rewarding than being able to save those perfect berries and incredible vegetables for a dark, dreary winter day.

Also, people freak out over homemade jam, and pickling parties are really fun. So there's that.

I'm only providing a couple basic recipes in this book, because there are hundreds of canning books out there right now. You might notice I'm only talking about jams, jellies, and pickles, and not including stuff like canned meat or non-pickled veggies. That's because those foods can't be canned safely without a pressure canner, which can heat food to a higher temperature than a



pot of boiling water can. This section is mainly for beginners, so pressure-canner recipes are a bit out of scope.

Supplies

You can find tons of tools that purport to make canning less labor-intensive, but the truth is that it's a long process no matter what. Unless you're starting a jam business, I suggest you start with the basics. And here they are!

A Cooking Pot: Use a big, heavy-bottomed pot (6-8 quarts) that's wide enough to cover your stove's largest burner. Material is important here: pickles, jams, and preserves all require some kind of acid, so a non-reactive pot is essential. Choose stainless steel or enamel and you're good to go.

A Boiling Pot: This mother needs to be BIG, at least 9 quarts, and bigger if you plan on canning large or multiple batches at once. Make sure it's deep, too, so that the jars can be completely covered without causing any boilover.

There needs to be some kind of rack in the bottom of the boiling pot to keep the jars from

bumping around. You can buy a rack, or you can improvise by adding a metal trivet or folded dish-towel to the pot before you fill it up.

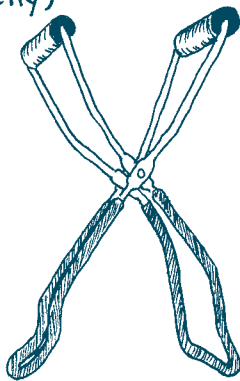
Jars, Rings, and Lids: Use Mason or Ball jars, not old pickle or mayo jars from the store. That will end in tragedy, or at least failure.

Canning jars are easy to find at grocery or thrift stores. Rings and jars in good condition are fine to reuse, but buy new flat lids each time you can.

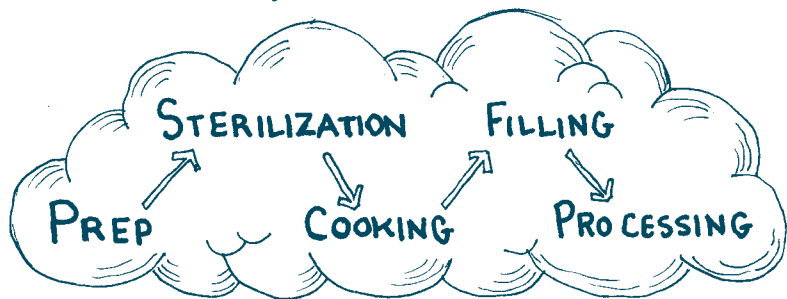
Once you crack the seal on a jar of home-canned food, the lid can't be reused. Sorry. ☹

Other Tools, in no particular order:

- ★ a jar lifter (sooo much nicer than tongs!)
- ★ a wide-mouth funnel
- ★ a sieve (if you're making jelly)
- ★ a candy thermometer
- ★ a kitchen scale
- ★ a wooden spoon
- ★ a chopstick
- ★ a ladle
- ★ a small, heatproof bowl



The Process goes like this:



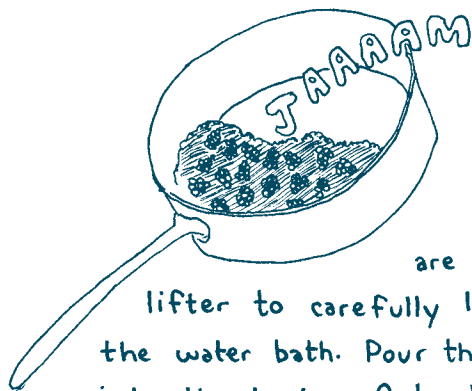
Step 1: Prep your fruit or veggies. If you're making jam, this might mean hulling strawberries or pitting apricots. For pickles, it might entail lots of chopping. Either way, get it done with and have your ingredients prepped and measured ahead of time.

Step 2: Start your hot water bath for later on. Fill the boiling pot with water, add the jar rack, and put it on the stove over high heat.

Step 3: Wash your jars, rings, and lids. Place the lids in a heatproof bowl, and have the rings next to them on the counter. Place the clean jars on a folded towel (we'll call it a prep towel) near the boiling pot. While you're at it, put another folded towel (the cooling towel) nearby to hold the jars after they come out of the water bath. Grab the jar lifter, funnel, ladle, and chopstick, and have

them nearby, too.

Step 4: If your recipe calls for a processing time of 10 minutes or less, sterilize your jars before you fill them. Once the water boils, use a jar lifter to put the jars in one by one. Keep them submerged for at least 10 minutes.



Step 5: Make your preserves, pickles, or whatever delights you have in store.

Step 6: When the jars are sterilized, use the jar

lifter to carefully lift the first jar out of the water bath. Pour the water from this jar into the heatproof bowl, on top of the jar lids. A warm bath will soften the rubber on these guys and help form a tight seal later on. Remove the remaining jars from the water bath, tip the water from each into the pot, and place them on the prep towel.

Step 7: Using the ladle and funnel, pour your brine or jam into the hot jars. Leave about $\frac{1}{4}$ " of headspace in each jar (this might vary by recipe).

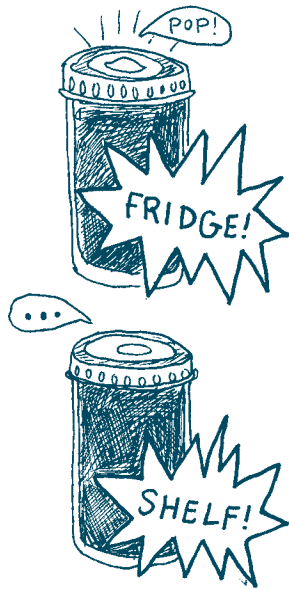
Once the jars are full, run the chopstick around the inside of each jar to remove any large air bubbles. Wipe each jar's rim with a damp towel.

Step 8: Plop a warm jar lid on each jar.

Add the ring and screw it on until it's just tight—don't force it! A lid that's too tight will trap any lingering air bubbles inside, which is bad news.

Use the jar lifter to place the jars upright in the water bath. The water should cover the jars by at least an inch or two. Boil away for the length of time designated in your recipe. Then, lift the jars out and place them on the cooling towel.

Step 9: Leave these babies alone for an hour or two, then do a pop test on each lid to make sure it sealed properly. If the lid pops up and down when you press it with a finger, your jar isn't sealed. Ain't no thing, though: you



can still stick the jar in the fridge and use what's in it. It's just not shelf-stable.

Once the jars have cooled completely, remove the rings and store the jars in a cool, dark place. Why remove the rings? To detect botulism, of course! Dangerous bacteria get very active in an environment like a poorly sealed jar. If your jar has nasties in it and the ring's off, the pressure inside will force the lid to pop off. Thus, you know not to eat whatever's in there. Better messy than sick, amiright?

★ ★ ★
★ Simple No-Pectin Jam ★ makes ~2 quarts

4 lbs clean (peeled, seeded) chopped fruit

4 c sugar

4 T lemon juice (little less if your fruit is tart)

Pour all your ingredients into the cooking pot. If the fruit isn't super juicy, add $\frac{1}{4}$ - $\frac{1}{2}$ c water.

Cook this mess over medium-low heat for about 2 hours, or until the temperature on a candy thermometer reads 220°F. At this point, your

fruit will look suspiciously like jam. To test it, put a dollop on a saucer and stick it in the fridge. After a few minutes of chilling, the jam should be soft but not runny. If it's runny, cook another 15 minutes or so.

Ladle the jam into hot, sterilized jars, leaving about $\frac{1}{4}$ " headspace. Close up the jars like we talked about and process them in a water bath for 5 minutes to seal the jars.

★ ★

Green Bean or Asparagus Pickles ★ ★

★ makes
★ ~ 2 quarts

- | | |
|---|------------------------|
| 2 lbs clean, trimmed asparagus or green beans | |
| 4 cloves peeled garlic | 2 1/2 c cider vinegar |
| 1 bunch fresh dill | 2 1/2 c water |
| 4 t kosher salt | 1/2 - 1 t chili flakes |

Blanch the veggies + pack them into jars. Add a garlic clove and a couple dill sprigs to each ^{sterilized!} jar.

Bring the rest of the ingredients to a boil over high heat. Using a ladle, pour the hot brine over the pickles, submerging them + leaving $\frac{1}{4}$ " headspace.

Close up the jars and process for 10 minutes in a water bath.

Lacto-Fermentation

This method of preservation isn't quite as popular as canning, but perhaps it should be. Rather than using heat to kill off bacteria, lacto-fermentation uses bacteria to preserve food. The result is tangy, pickle-esque veggies and fruits bursting with healthful microbes. So all you kombucha freaks, pay attention: this one's for you!

The keys to successful fermentation are salt, time, and compression. The process is anaerobic, so you don't even need air—in fact air will only spoil the fun. You'll also need some tools you might not already have. The ideal fermenting vessel is a stoneware crock with a lid that can fit tightly inside it. You can find one in a specialty store or online.

Other equipment you'll need: a large rock to weigh down the lid, a large bowl, a sharp knife, and a large cutting board.



The most popular dishes prepared this way include sauerkraut and kimchi, but you can lacto-ferment all sorts of fruits, veggies, and even beverages. Give it a try!

Sauerkraut * makes 3 quarts *

- 5 lbs cabbage
- 3 T kosher salt



Before you start, boil a big pot of water, scrub the rock you're using, and boil it for a few minutes. Take it out and let it cool while you work.

Core the cabbage and slice it thinly. Place it in a large bowl and toss it with the salt.

Working a handful at a time, pack the cabbage into the crock. Really mash it in there! Once it's all in, smush the lid down on top of it and add the rock on top of that. Cover everything with a tea towel and move it out of the way.

Each day, push down on the rock to keep the cabbage tightly packed. Liquid will rise up around the lid, and that's great! It's just water drawn out by the salt. As long as the cabbage stays totally submerged in this brine, you're golden.

Let the cabbage ferment for two weeks. After about a week, try removing the lid and

peek inside. You might see some bubbles or gross floaty spots. As long as these are on top of the liquid and not on the actual cabbage, there's no reason to freak. Skim off what you can and replace the lid and rock

When two weeks are up, remove the kraut and put it into clean 1-quart jars. Keep these in the fridge and they'll last quite a while. Enjoy!

Lacto-Fermented Dill Pickles *makes 2 quarts*

sour + salty — not vinegary!

10-12 pickling cukes, scrubbed and trimmed

2 T mustard seeds

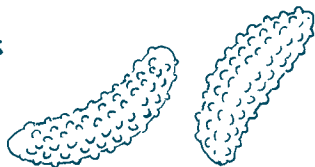
1 T whole black peppercorns

4 big sprigs fresh dill

4 T sea salt

2 c spring water

2 grape leaves (optional — they preserve crispness)



Layer the ingredients in a fermenting crock. Make sure the water covers the pickles. Add the lid and rock on top (see Sauerkraut recipe). Let the pickles ferment for up to a week. Then, transfer them to the fridge packed in 1-quart jars. Again, you might notice a few bubbles here and there, but you're good as long as the pickles stay submerged. Your pickles will keep for up to 3 months in the fridge.

MAKING JERKY

I'm not going to ask why you have that much meat in your fridge. Maybe there was a sale. Maybe you and your friends bought a pasture-raised cow together + now your freezer's brimming with odd cuts you don't know what to do with. Maybe you found it! It doesn't matter. If you have lots of meat, make jerky. It's delicious, nutritious, and keeps long enough for you to actually finish it.

When choosing meat for jerky, pick a lean cut. The fat in meat is what turns rancid first, so fatty cuts of meat = nasty jerky. Big animals (cows, deer, elk) are popular for making jerky, but turkey and salmon work great, too.

Step 1: Using a sharp knife, trim as much fat as you can from your meat.

Step 2: Put a little bit of water or marinade in a pot and add the meat. Bring the liquid to a simmer and braise the meat until it's cooked through. Stick a meat thermometer in the pot to make sure beef, game, and fish reach 160°F;

Chicken, turkey, and other poultry should reach 180°F.

If you're wondering about why we cook meat before drying: while drying meat inactivates many harmful organisms, it doesn't kill them. They'll still be milling around in your meat until you cook it.

Anyway, once the meat is cooked, drain it and let it cool. Preheat your oven to 175°F.

Step 3: Place the meat on a clean cutting board. Use a sharp knife to cut the meat into thin strips (no thicker than 1/4"). Spread the meat on a baking sheet or two.

Step 4: Add seasoning! Salt at the very least, but I urge you to try out different spices, sugars, chiles, and citrus juices to see what tickles your fancy.

Step 5: Pop the meat in the oven, leaving the door slightly ajar, and cook the meat for about 5 hours. Successful jerky will be shriveled, dark, and firm but pliable enough to bend without snapping.

Step 6: Let the meat rest on paper towels to drain off any fat. When it's completely cool, keep the jerky in an airtight container for up to 2 months. Toss it out if it looks or smells moldy.

SALT-CURING FISH

These days, we tend to freeze food when we want to keep it on hand for a long time. Freezing is convenient, of course, but it's also a major trade-off. If you've ever defrosted a salmon filet to find it tasteless and dry, you know what I mean. A possible solution? Go super old-fashioned and try your hand at salt-curing.

Salt has been used to preserve food for basically ever. Packing meat and fish in salt (or alternately, soaking it in a brine solution) not only preserves the food, but infuses it with more flavor and a lovely firm texture.

Not gonna lie: this is a lengthy process. But if you like to fish or you participate in a CSA-style program, salt-curing will come in really handy when you suddenly have more fishes than one freezer can handle. You might say curing is really worth its salt! (But I won't.)

A few notes before you begin:

★ See if you can cure your fish in the summer, because you'll need plenty of sunshine and fresh air.

★ Salt curing, much like freezing, can affect the texture of your food. Salt draws moisture out of food, so salt-cured fish will be very firm and flaky. Plenty of people love this texture, but it may not be your thing. I say give it a try—if you don't like it, someone else surely will.

★ For salt-cure recipes, most folks use curing salt, which has large crystals that can soak up a lot of moisture. If you can find curing salt near you, awesome. If not, substitute any chunky or flaky salt, preferably one without additives like iodine. You'll need a lot of it (1lb salt for every 5 lbs fish) so choose something you can afford several large boxes of.

Coarse kosher salt is a terrific choice, as is Alaea salt or coarse sea salt.



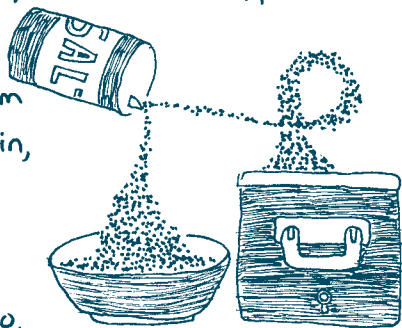
Equipment:

- ★ fresh fish (sans heads, guts, and blood, and filleted off the bone)
- ★ lots of salt—see notes
- ★ a cooler or other large watertight container
- ★ a baking sheet or large, flat-bottomed bowl
- ★ a large, clean bucket for rinsing
- ★ clean wooden planks and non-metal weights
 - for smaller jobs, you can use dishes instead of planks
- ★ a wooden clothes-drying rack or other wood frame

PHASE 1: THE SALTING

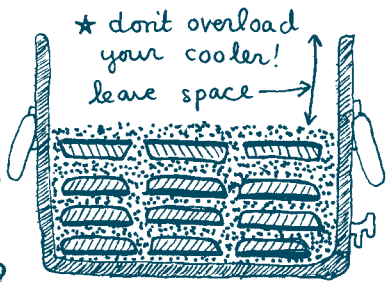
Step 1: If you need to, sort your fish by type—you'll need to preserve each type of fish separately.

Step 2: Coat the bottom of your cooler with a thin, even layer of salt. Grab a baking sheet or flat-bottomed bowl and pour a bunch of salt in that, too.



Step 3: Plop each piece of fish into the bowl or baking sheet and coat thoroughly with salt. Pat the fish down to make sure the salt's sticking.

Step 4: Place the fish inside the cooler in a single layer, skin side down. Top this off with a layer of salt, and repeat until all the fish are in the cooler. Flip the top layer so the skin side is up. Finish off with a final, even layer of salt.



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Step 5: Add a few wooden planks or dishes on top of the salt. Place the weights on top of the planks. As the salt draws moisture out of the fish, the salt will melt into a briny solution. You're adding the planks and weights to keep your precious fishes submerged as this brine starts to form.



Step 6: Pop the lid on the cooler and let it sit for 2-3 weeks. The colder your climate is, the longer you'll have to wait.

Check your fish every couple days to make sure they're still submerged in brine, and to add more salt to the solution. Don't forget this part! The fish can start rotting if the saturation level dips too much. Each time you add salt, put in enough so that no more will dissolve in the solution.

Do a smell test whenever you open up your cooler — you should smell fish, brine, and that's it. Grosser smells indicate something's gone wrong. The fish can be considered done (or phase 1 is, anyway) when the flesh is firm and translucent, and yields slightly when pressed. The fillets also might be a little smaller than when you put them in the cooler. If your fish stinks, is mushy, or is falling apart, toss it and scrub that cooler thoroughly with a baking soda paste.

PHASE 2: THE DRYING

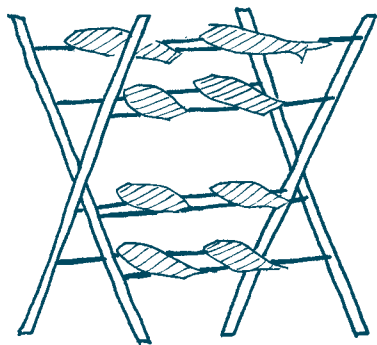
Step 1: Prep a batch of fresh brine (make it about as salty as sea water) and pour it into a clean bucket. Dig the fish out of the vat and rinse them in the bucket to remove any excess salt.

Step 2: Transfer the clean fish to a flat surface and cover them with a new set of planks and weights.

The pressing will squeeze out any remaining water in the fish and make air drying a lot quicker.



Step 3: Set up a wooden grate or frame (like a clothes-drying rack) in a dry spot outside. When the fish is no longer sopping wet, lay them over the frame in a single layer, flesh side up. Try to let as little of the fish touch



the wood as possible.

Let the fish stay here for a few days until each piece is thoroughly dry. Protect the fish from dampness as much as possible. That might mean moving the frame under an eave or into a ventilated shed during a rainstorm.

Fun fact: fish can get sunburn, even when they're dead. Too much sun can harden the fish's outer flesh and keep the inner flesh from drying properly. So if you can swing it, keep your whole apparatus partially shaded for the first day of drying, and then move it into direct sunlight for the rest of the drying process.

You can try this indoors if you need to, but keep in mind you need plenty of direct sunlight and serious ventilation.

When the fish is totally dry, pack it in an airtight container and either keep it in the fridge or a very cool, very dry place. If you have the means to vacuum seal the fish, so much the better.

Food Preservation Resources

How to Store Your Garden Produce: The Key
to Self-Sufficiency

by Piers Warren

Totnes: Green Books, 2008

Ball Complete Book of Home Preserving: 400
Delicious and Creative Recipes for Today

edited by Judi Kingry and Lauren Devine

Toronto: Robert Rose, 2006

The Canning, Freezing, Curing & Smoking of
Meat, Fish & Game

by Wilbur Eastman

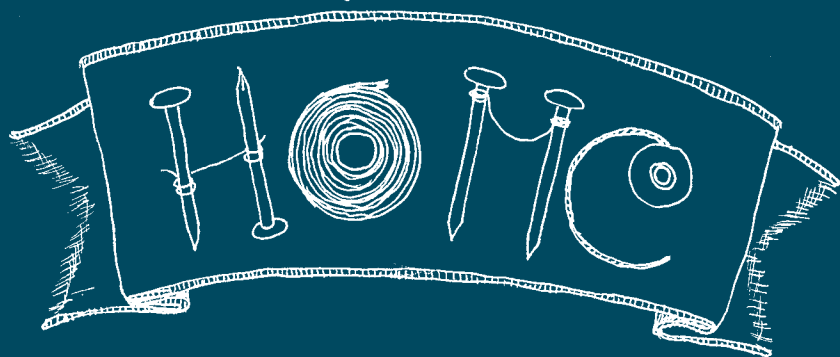
Charlotte, VT: Garden Way Pub Co, 1975

Wild Fermentation: The Flavor, Nutrition
and Craft of Live-Culture Foods

by Sandor Ellix Katz

White River Junction, VT: Chelsea Green
Pub Co, 2003

chapter 3



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For this final chapter, let's turn our attention to that very core of domestic life: our homes. Most of us face plenty of home-repair tasks on a regular basis—I rarely have days in which nothing in my home needs fixing.

There's a lot of apprehension about home repair because the stakes seem so high. But honestly, if you've ever cooked meat to a safe temperature or cleaned an oven without killing yourself, you can totally fix up your home. And you really should do the simple projects yourself, because DIY repair means less money spent on plumbers, less time spent waiting for your landlord, and less water and energy lost through drafty windows.

The how-tos that follow are for beginners or folks looking for a refresher. None of the projects involve blowtorches, caustic chemicals, or power tools, but I urge you to take proper precautions nonetheless. Make sure you have all your equipment before you begin, wear gloves and masks if there will be dust or chemicals around, and go slow until you have a good feel for the process. Have fun!

DOORS

Ah, the paradox of doors: they pose some of the worst dilemmas, but also the simplest solutions. Don't wait until that handle breaks off and leaves you locked outside of your bathroom for hours! Doors are so technologically simple that minor annoyances like creaks, goofy handles, and loose hinges are easily overcome with the help of your tool kit. Here are a few of the most common door problems and how to fix them in a jiffy (or two).

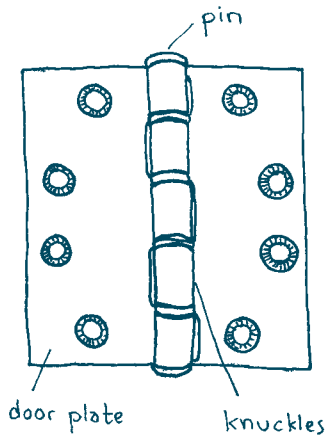
Squeaky Doors

CREEEEEEEE...

So whenever you open this door, an ear-scraping squeak escapes from the hinges. How annoying! Conventional wisdom would have you grabbing the spray can of lube and blasting the hinges through that tiny red straw. Simple, right?

Not really. That stuff is great, but it can attract a lot of dust and gunk, thus rendering its lubricating qualities useless. Also, just spraying the whole hinge won't get to the root of the problem, which is usually the pin that's holding the hinge together.

A better option is to remove the hinge pin and rub it down with white lithium, which is a thick greasy substance you can find at the hardware store. Once you're done, slide the pin back into place and tap it down gently with a hammer.



Sticky Doors

Another noisy problem: a door that rubs against its frame whenever you open or close it. This can happen if a door is cut poorly, set incorrectly in its frame, or if high

humidity causes the wood to swell. To fix it, you first need to pinpoint which areas of the door are causing the friction.

Step 1: Grab a sheet of paper and a soft pencil and cover a good portion of the paper with scribbles.*

Step 2: Tape the paper over the top of the door in the spot that you think is rubbing. Open and shut the door a few times.

Step 3: Check your frame. Are there pencil marks on the door frame? If so, that's where your door is rubbing. Ding ding ding!

Step 4: Grab a sanding block, or a power sander if you have one, and sand down the troublesome area until the space between the door and the frame is clear. You might have to move the paper down and try sanding a different area if you couldn't pinpoint it the first time.

* You can also use carbon paper for this, but who has carbon paper?

Loose Doors

The swingin' nature of a door means that every door hinge will eventually get a little loose. Generally, this is caused by one of three things:

1. the screws are loosening' due to the tug of the door being opened and closed;
2. the movement of the screws inside the door frame is causing the holes to become too big;
3. the screws were too short to begin with.

To figure out what's going on with your door, start by using a screwdriver to remove one screw from one of the door's hinges. Ponder this screw: is it only an inch or so long? If so, you probably just need a longer screw. Take the screw to the hardware store and find 8 new screws that look the same as the old one but are a bit longer. Replace all the screws on the frame side of both hinges.

Next, check out the hole where the screw used to be. Can you slide the screw into it without using your screwdriver? If so, you need to either fill in the hole a bit, or add a little something to your screw.

A good, quick trick to fix the first problem is to jam a couple of wooden toothpicks into the hole and break off any extra wood. Once the hole's full, replace the hinge plate and see if your screw doesn't bite a lot tighter.

If you need to amend your screw, try covering it with a layer or two of tinfoil. Tear off any excess foil once the screw's back in the door.

Removing a Broken Key

What a crummy situation! Well, hopefully there's more than one way into your home. The best way to remove a key from a lock is to spray the lock well with either liquid lubricant (like WD-40) or powdered graphite

(which is slippery but not sticky), and then try to extract the key using needle-nose pliers. If you're using liquid lube here, make sure to wipe up any extra so that it doesn't attract dust.

Replacing a Doorknob

Don't put off replacing a shaky knob! It's way easier to install a new knob than to try and shove the handle back on after it falls off into your hand. All you need is a screwdriver and a bit of hand-eye coordination.

Before you get down to it, you need to find a new doorknob! Some things to consider:

★ Is this an exterior or interior door? If it's interior, do you want a lock on it?

★ Do you want a lever instead of a knob? If so, you'll need to look at your door and figure out whether you want your lever to be right or left-handed.

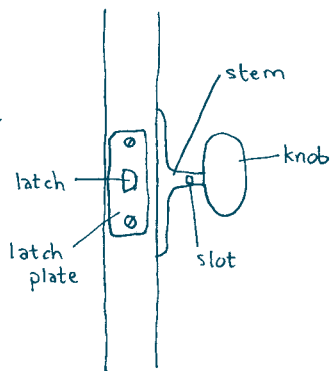
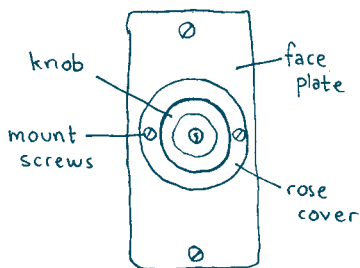
★ Try to find a replacement knob with a latch that's the same length as your current knob. If you can, remove the knob and latch

before you go shopping and bring it in with you to compare. If that's not practical, you can pull the latch out, measure it, and screw it back in.

Step 1: Grab a bowl to hold any loose hardware. Open the door and pull up a chair. Have your legs straddling the door's edge so that you can easily access both sides of the door. Oh yeah, and grab a screwdriver.

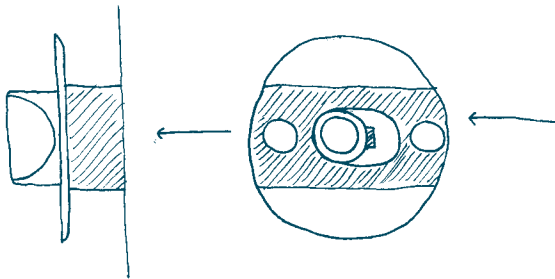
Step 2: Remove the screws on the faceplates. Remove the screws on the rose cover and pull off the doorknobs on both sides of the door.

NOTE: Some doorknobs have mount screws and some don't. If yours doesn't, look for a small slot on the knob's stem. Inserting a paper clip in the slot while pulling on the knob should



release it from the door.

Step 3: With the knobs removed, you should be able to see the latch mechanism inside the door. Remove the latch plate screws and carefully slide the latch out of the door.



Step 4: Slide the new latch into the door and tighten the screws on the new latch plate.

Step 5: Align the stem of exterior knob so it slides easily into the latch casing. The stem will poke out through the inside of the door. Slip the interior knob over the stem.

Step 6: Replace the strike plate on the door frame. Make sure the lip of the plate faces the same direction it did before.

Step 7: Tighten the mount screws on the knob and plate and turn the knob to make sure the latch works.

Fixing Walls

And by walls, I mean drywall. Man, drywall just crumbles under pressure, doesn't it? It's a good idea to repair cracks and holes while they're still small. They'll definitely grow over time, and the bigger they are, the harder they are to fix.

What you'll need:

- * Newspaper or drop cloth
- * Utility knife
- * drywall patch (for holes)
- * drywall compound
- * sanding block and fine-grit sandpaper
- * small brush
- * paper dry wall tape (for cracks)
- * wide putty knife
- * compound tray

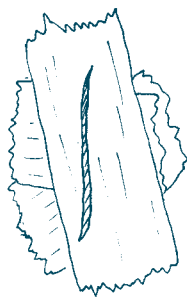
Fixing Cracks

Step 1: Place the paper or cloth on the ground beneath the crack. Take a look at the crack and note its width. Will it be wide enough to fill with goop? If not, you'll have to widen it.

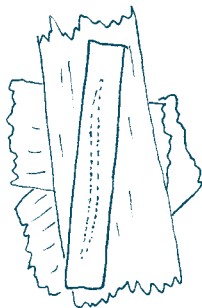
Step 2: Use the utility knife or the edge of your putty knife to remove rough edges and widen narrow parts of the crack. Sand it lightly if the edges still need work and use the brush to

remove as much dust and grit as you can.

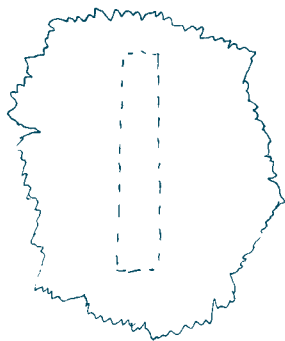
Step 3: Plop some compound in the tray and use the putty knife to coat the crack with compound. The compound layer should be thin and should extend a couple inches beyond each side of the crack.



Step 4: Cut a length of drywall tape a little longer than the crack and stick it right on top of the wet compound. If the crack is crooked, you might need to use a few small pieces of tape instead. Make sure the tape is really embedded in the compound.



Step 5: Using a smooth scraping motion, swipe the putty knife over the top of the paper to remove any ridges. Load more compound onto the knife and apply another thin coat to the area. Feather the edges by moving the knife gently back



and forth as you work (this will help the repaired area blend into the wall once you're done). Let this dry overnight.

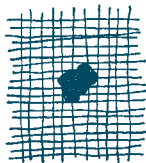
Step 6: The next day, apply a second thin coat of compound that's a teeny bit wider than the first. Let it dry and repeat with a third and final coat.

Step 7: Once everything is totally dry, use a sanding block and fine-grit paper to smooth the repaired area, especially the edges. Brush away any dust with a little brush. Finally, prime and paint the newly repaired area to match the wall around it.

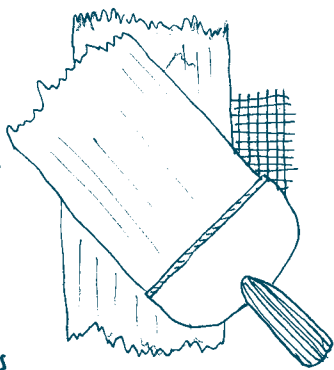
Fixing Holes

Step 1: Place your drop cloth or newspaper under the hole. Use a utility knife to clean up the borders of the hole and remove any rough edges. Sand if you need to and brush off any dust.

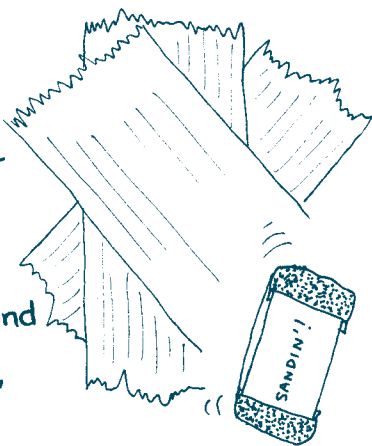
Step 2: Cut the wall repair patch so that it's just big enough to cover the hole plus a little extra on each side. Place it over the hole, sticky side down, and smooth it with your hand.



Step 3: Dump some compound into the tray. Apply a decent coat of compound on top and around the patch with a wide putty knife. Make sure the whole patch is covered. Vary your strokes and feather the edges of the compound coat. Allow the coat to dry.



Step 4: Smooth out any bumps with your sanding block, then go over the patched area with another coat of compound. Dry again, sand again. Repeat! Once three coats of compound are dry and sanded nicely, feel free to prime and paint the wall to your heart's content.



Windows

Windows are more than just pretty holes in your house's face. They let in light, of course, but they're also responsible for regulating the (physical and, if you're into it, metaphysical) energy of your home. Anyone who's ever lived in an old house knows how much heat gets lost through drafty windows. Keeping windows operational and efficient can save you a ton of money, prevent wasteful energy use, and allow you to wear but one pair of socks in the wintertime. Hooray!

Opening a Stuck Window

There are a few reasons why a window might get stuck. Perhaps the humidity has caused the wood to swell and warp. Perhaps it's nailed or painted shut. Or perhaps it's just full of dirt and gunk. (Perhaps all three!) Such are the delights of living indoors.

Before you begin, check for nails or wedges that might be holding the window in place, and remove them. Next, check to see if the window's

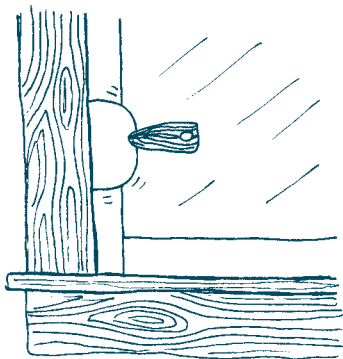
been painted shut. If so, here's what you can do.

Equipment:

- * utility knife
- * putty knife
- * hammer
- * candle stub
- * toothbrush
- * rag + cleaner
- * sandpaper

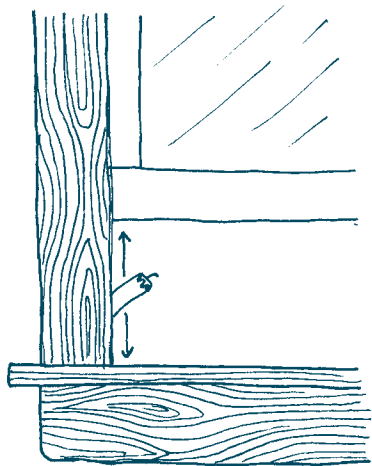
Step 1: Use the utility knife to cut through the paint holding the window closed. Go slowly and don't force the knife.

Step 2: If that doesn't loosen the window, wedge the blade of a putty knife in between the window and its frame. You might be able to work the knife all the way around the frame, but if not, you can try tapping the end of the knife's handle with a hammer as if you were using a chisel. If the window isn't too far off the ground, you should try the putty knife trick from the outside, too.



Step 3: Open the window as much as you can, applying gentle pressure if necessary. Get a toothbrush or a small scrub brush and some cleaner and clean out the channels of the window as thoroughly as possible. Dry the channels with a rag, or let them air dry.

Step 4: Using sandpaper wrapped around your finger, sand the bottoms of the frame, the channels, and the bottom of the window. Look for any splinters that might be causing the window to snag and make sure they're sanded away.



Step 5: Finally, run the stub of a candle up and down the channels of the window to lubricate them. (You can also use a chunk of beeswax for this.) Open and close window a few times to distribute the wax.

Repairing a Window Screen

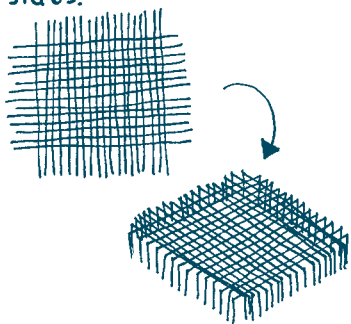
My cat has a habit of climbing screens. Maybe yours does, too? In that case, it's helpful to know how to quickly patch a screen and get those claw-holes under control. (Your cat's behavioral issues are your problem, unfortunately.)

For tiny holes, use needle-nose pliers to bend the broken wires back toward each other. For bonus points, see if you can twist them together to strengthen the weak spot in the screen.

Larger holes in metal screens are patched with a bit of screen made of the same material. Make sure your patch is the same metal as the screen, or your screen may rust.

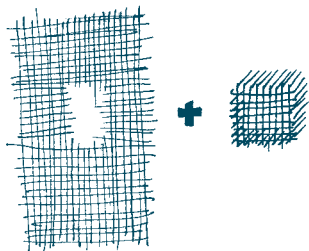
Step 1: Cut a square of screen that's a bit larger than the hole on all sides.

Step 2: Remove a couple of wires on each edge of the patch to create a fringe all around. Bend this fringe down at a 90° angle to the rest of the patch.



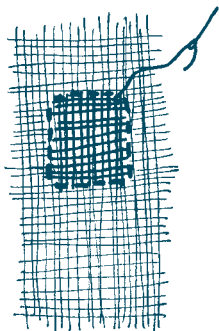
Make the angle as clean as you can.

Step 3: Press the patch into the screen on top of the hole. Try to get the wires from the fringe to poke through to the other side of the screen.



If some of them splay out instead, remove the patch, realign it for a better fit, and try again.

||



Step 4: Move to the other side of the screen and bend the fringe wires down so that they lay flat against the rest of the screen.

If this feels weak, you can reinforce it by stitching the edges of the patch to the screen with fishing line or other strong thread.

NOTE: Plastic or fiberglass screens can be fixed by using a needle and fishing line to sew a piece of screen to the screen door, as if you were patching fabric. Waterproof glue will work in a pinch.

Fixing a Drafty Window

Old single-paned windows are generally pretty drafty—it's the price you pay for "old-world charm." But there's a lot you can do to increase the efficiency of your windows without paying out the butt for new ones. You'll actually end up saving money, because a drafty house costs more to heat. So there's that, too!

Before you can fix a draft, you need to find a draft. An old, reliable trick is to pass a lighted candle around the frame of the window. (Move any curtains out of the way first.) Go around the outside of the frame, too. If the candle flickers, air is leaking through in that spot. Mark the drafty spots with a sticker or pencil.

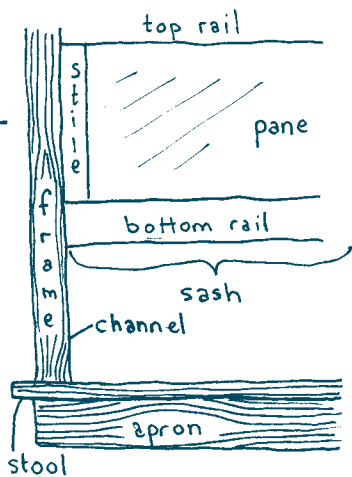
Depending on how quaky your candle flame gets, you might get away with a quick caulk touch-up. Or you might need to weatherstrip the window. Lucky for you, it's easy either way.

Equipment:

- * silicone caulk
- * rags and cleaner
- * v-channel weatherstripping (vinyl is easiest)
- * self-adhesive vinyl foam

Step 1: Clean and dry the sash, frame, and channels of the window. Most of the products used for weatherstripping depend on adhesion, and glue doesn't stick to dirt, unfortunately.

Step 2: Measure the window sash and cut two pieces of v-channel weatherstripping that are the length of the stile plus a couple of inches. With the window all the way open, remove the backing from one v-channel strip. Make sure the flared end of the v shape faces outside and press the strip into the window's channel. (If your strips aren't self-adhesive, use tiny nails or tacks to hold them in place.)

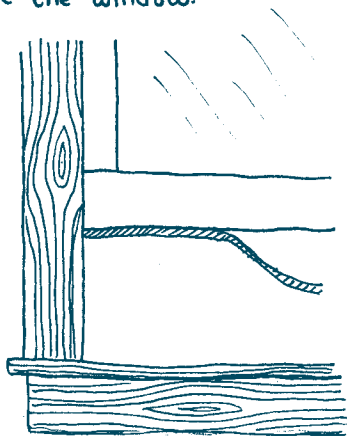


When you close the window, the strip should rise about 2 inches above the sash. Repeat on the other side of the window.

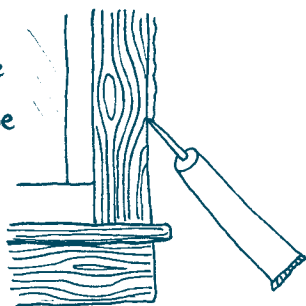
Step 3: Cut another strip of v-channel that will fit along the top rail of the sash. Open the window a few inches so you can stick the strip

on the outside edge of the top rail. Face the flared end of the v shape upward, so that it gets squeezed shut when you close the window.

Step 4: Cut two strips of vinyl foam the length of the bottom of the sash. Remove the backing from the foam strips and press them into place along the bottom edges of the bottom rail.



Step 5: Seal the outside of the window frame with a thin bead of silicone caulk all the way around. Pay special attention to any trouble spots you identified earlier.



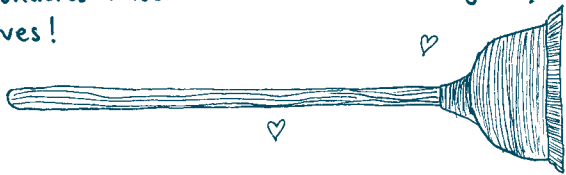
Wet your finger and smooth the caulk down. Repeat this sealing on the window's exterior if you have access to it. Let the caulk dry for at least 24 hours.

Tubs and Sinks

Want to drive yourself crazy? Think about drain openers for a second. They're effective, yeah, but they're also lethal. And they're meant for use in the parts of your home in which you spend your most vulnerable (naked!!!) moments. It gives me the heebie-jeebies. Lucky for us, there are plenty of ways to maintain your drains (and tubs, and sinks) without resorting to poison. Here are a few!

Unclogging Tubs + Sinks

For both sinks and tubs, your first course of action is to plug the overflow drain with a rag and go at the clog with your handy plunger. (Hint: a bit of petroleum jelly around the plunger's rim will create a tighter seal.) If that doesn't work, it's probably because whatever hair or gunk is caught in the pipe is too large to be dislodged by suction. Time for a bit of handsies-kneesies time. Don't forget your rubber gloves!



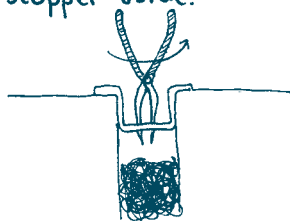
Equipment:-

- * rags
- * needle-nose pliers
- * screwdriver (flathead)
- * adjustable pliers
- * clog-picker (a coat hanger, chopstick, whatever)
- * a bucket

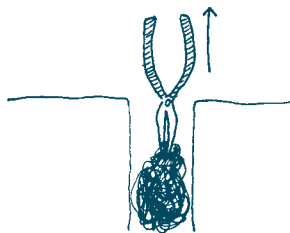
Tubs

Step 1: If the tub has a stopper installed, remove it. Clean off any tangles of hair or gunk with a rag or paper towel, and set the stopper aside.

Step 2: Remove the drain cover by prying it up with a screwdriver or gripping the holes with needle-nose pliers and turning until it comes loose.



Step 3: Use a straightened coat hanger or your pliers, remove whatever's in the drain and throw it away. If the problem is just general gunk, try pouring a few kettles of boiling water down the drain to dissolve the buildup.



Step 4: Run some water down the drain to see if the drain's still clogged. If so, fill the tub a bit and

try the plunger again.

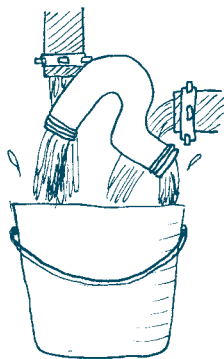
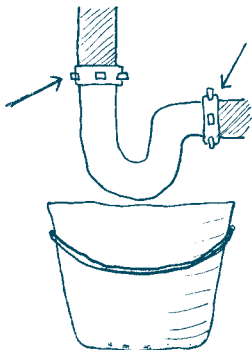
Step 5: Once the drain is clear, replace the drain cover and stopper.

Sinks

Sink clogs are usually the result of a clog in the U-shaped trap pipe under the drain. If plunging your sink doesn't do much, this pipe should be removed and cleaned out.

Step 1: Grab a bucket and put it directly beneath the trap. Using adjustable pliers, loosen the big slip nuts on the vertical and horizontal parts of the trap. Leave the nuts on the pipe as you remove the trap.

Step 2: Dump the water in the trap into the bucket. If your sink is really clogged, prepare for all the water from the bowl to gush down into the bucket as well.



Step 3: Use needle-nose pliers, a coat hanger, or whatever you have handy to remove the offending clog from the trap. If it's really gunky, you can use a rag or bottle brush to scrub the trap out (in a different sink, of course). If you don't encounter any clogs in the trap, check the drainpipe and the pipe in the wall—clogs like to hide there, too.

Step 4: Fit the trap pipe back in place and tighten the nuts with your fingers. Use the pliers to tighten them a little more, but not so much that it's hard to loosen them next time.

Recaulking a Tub

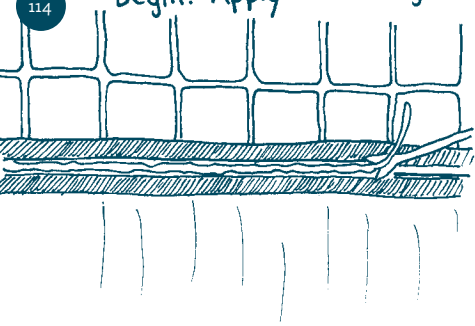
Bathtub caulk can get naaaaasty, especially if (like me) you live in a mildew-prone climate. You can attack your tub with whatever cleaner you fancy, but eventually the mildew underneath the caulk will spread to the tile and the wall behind it. So replacing the sealant once in a while actually makes a lot of sense, as it can nip those big mildew issues in the bud.

When you're shopping, look for silicone caulk that's specially designed for bathroom fixtures. Get the kind you can squeeze by hand, because everyone knows caulk guns are a giant pain in the ass.

Equipment:

- * silicone caulk
- * masking tape
- * caulk removal tool or razor blade
- * rags
- * vinegar, rubbing alcohol or bathroom cleaner

Step 1: Make sure the tub's dry before you begin. Apply masking tape directly above and



below the caulk all the way around the tub. This will help protect the tile from scratches as you remove the old caulk, and it'll give you a nice guide to work from while you apply the new stuff.

Step 2: Use a caulk removal tool or a razor blade to remove the old caulk. I recommend splurging on a caulk removal tool — at \$7, it's easier to handle than a razor blade, so you're in less danger of hurting yourself.

Step 3: Once the caulk's gone, thoroughly clean the joint between tub and wall. White vinegar will do a good job, but some people prefer rubbing alcohol because it dries so quickly. And, of course, you can use your regular tub cleaner as well. Just make sure the joint is as clean as you can get it, and that it's totally dry before you apply new caulk.

Step 4: Fill the tub with water. The water weight will open up the joint between tub and wall, ensuring that your caulk will get into all the nooks it needs to.

Step 5: Open your new caulk and apply a thin bead of caulk to the joint all the way around.

Use your finger (or the other end of the caulk removal tool, heeey)

to smooth the caulk down in place. Carefully remove the tape, drain the tub, and let the caulk cure for at least a day before using the tub or shower.



Fixing a Leaky Faucet

There are a few varieties of faucet out there, and all of them work a little differently. Generally speaking, though, leaks are probably due to a worn-out washer, seal, or O-ring. To fix a leak, just dismantle the faucet until you find the faulty seal, replace it, and put the faucet together. Try a dry run (pun intended—turn the water off first!) before the repair to make sure you know the parts well.

Equipment:

★ rags

★ screwdrivers
(both types)

★ Allen wrench

★ adjustable pliers

★ needle-nose pliers

★ spray lube

★ medium bowl

★ distilled vinegar

★ scouring pad

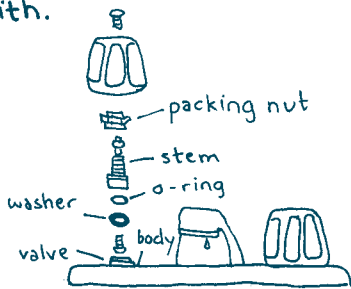
For all faucet repairs, your first steps should be to shut off the water to the faucet and plug up the sink with a stopper or rag. Pour some vinegar into a bowl and keep it nearby.

Remove the handle of the faucet by removing the screws holding it in place. Most screws are hidden under some sort of decorative element, so look for a little cap to pry off with a screwdriver.

From there, repair the leak according to what kind of faucet you're dealing with.

Compression Faucets

Step 1: Remove the large packing nut and pull the stem straight up out of the faucet body.



Step 2: Remove the screw holding the washer onto the assembly. Remove the washer and pull the stem out to remove the O-ring as well.

Step 3: Dunk the parts in vinegar and scrub them with a scouring pad to remove mineral buildup. Replace the washer and O-ring and reassemble the stem.

Step 4: Place everything from the faucet back into the faucet in the order you took it out. Replace the packing nut, tighten it, and pop the handle on top.

Replace the handle holding the handle on the faucet and press the cap on top of it. Turn on the water and test out your fancy new drip-free faucet.

Rotating Ball Faucets

Replacement parts for this type of faucet come in kits that include special tools you need for repairs.

Step 1: Use an Allen wrench to loosen the handle screws and remove the handle.

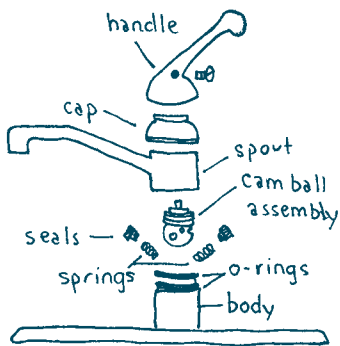
Loosen the adjusting ring with the special tool from the repair kit.

Step 2: Use pliers to unscrew the cap covering the cam ball. Lift out the ball and remove the spout as well.

Step 3: Look inside the faucet body and see if you can spot the rubber seals. Remove each seal with the tip of a screwdriver. Repeat with the little springs under the seals.

Step 4: Pry or cut the old O-rings from around the faucet body. Lube the faucet and roll new O-rings down into place. Replace the spout.

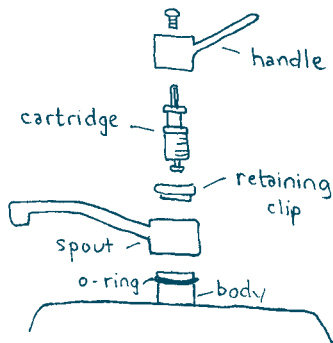
Step 5: Use your fingers to press new springs and seals into the faucet body. Insert the ball on top, fitting the tab in the ball into the slot in the faucet body.



Step 6: Screw the cap on top of the cam ball, add the handle and re-tighten the screw set.

Cartridge Faucets

Instead of replacing a washer or seal, cartridge faucets require you to replace the whole cartridge. You might want to pull the cartridge out first and take it with you to the hardware store.



Step 1: Use a screwdriver to remove the handle screw. Lift off the handle.

Step 2: Remove the retaining clip from the faucet body using needle-nose pliers. Pull the cartridge straight up from the faucet to remove it.

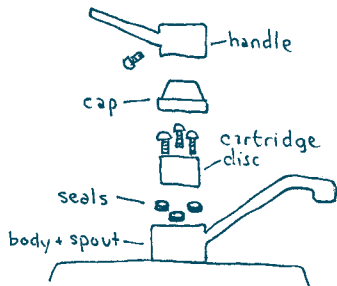
Step 3: Remove the spout and replace the O-rings if necessary (see Rotating Ball Faucets).

Step 4: Replace the spout, pop a new cartridge into the faucet (face it the same way as the old cartridge), and fit the retainer clip around it.

Step 5: Replace the handle and handle screw, and turn the water back on.

Disc Faucets

Like rotating ball faucets, leaky disc faucets are usually the result of worn-out seals. Replacement kits will include the seals and any other parts you may need.



Step 1: Use a screwdriver to remove the handle and the cap that covers the cartridge.

Step 2: The cartridge disc is held in place with a few small screws. Loosen these and pull the disc straight up out of the faucet.

Step 3: Flip the cartridge disc over and check out the seals on its bottom. Pull out any worn or cracked seals. Give the cartridge a nice scrub with vinegar.

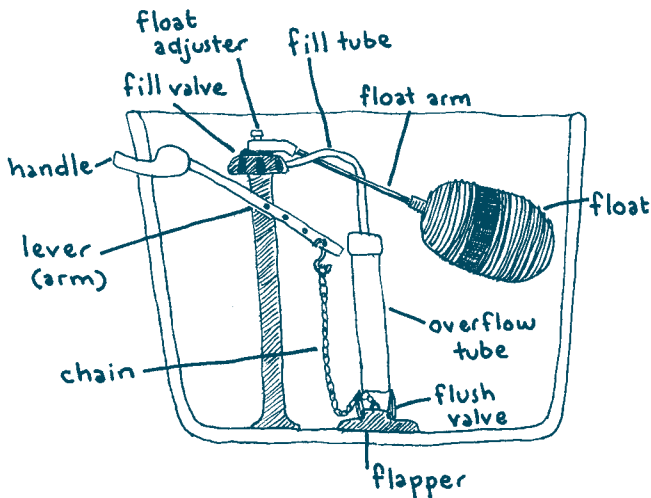
Step 4: Press in new seals with your fingers. Turn the disc right side up and pop it back in the faucet, making sure to align the seals with the holes in the faucet body.

Step 5: Secure the disc screws, screw the cap back on, and replace the handle. Turn on the water. Voila!

TOILETS

Here's a theory: Toilets are intimidating. It's weird to think of something so humble and literally full of crap as scary, but how else do you explain the kneejerk reaction to call the plumber when we hear so much as a gurgle? So many of us just don't want to handle toilet repair (pun intended), and that's silly. The fear ends now!

Anatomy of a Toilet



Fixing a Loose Toilet Handle

Let's get this toilet party started, eh? First up, what to do about that worrisome jiggle.

Step 1: Find the shut-off valve behind the toilet and turn the water off. If there isn't a shut-off valve, go ahead and turn off the main water supply. Flush the toilet once or twice to lower the level of water in the toilet tank.

Step 2: Carefully remove the lid of the tank and set it aside. Inside the tank, you'll see the stem of the handle, a flushing lever with a chain attached, and a nut joining the two.

For a jiggy handle, your first course of action is to tighten the handle nut. (These particular nuts are reverse-thread, so remember that when you're tightening it.) Grab a wrench and give the nut a couple of good turns counterclockwise. If the nut's not loose after all, move your attention down to the flushing lever.

Step 3: Take the chain off the lever and shorten it by re-hooking it to the lever a little further down. Leave some slack in the chain, though! Turn the water back on and flush to see

if that fixes the problem.

Step 4: Still jiggling? Ugh! Okay, one more idea. Next to the lever you should see a wire and float ball coming out from the flush valve. Use your hands to bend that wire and lift the float ball up a little. That should help tighten some of the slack in the handle. Turn on the water (if it's not on already) and flush to see if that helped.

Replacing a Toilet Handle

If fiddling with the nut, chain, and float doesn't fix your handle problem, it's okay. Handles are easy enough to replace. Just make sure you know what size handle and lever you have and shop for one that fits. (Tip: If the lever's just a little too long, you can use a hacksaw to shorten it before you do the installation.)

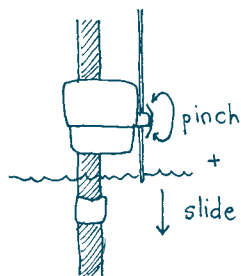
Step 1: If you haven't already, shut off the water to the toilet and remove the toilet tank lid.

Step 2: Remove the chain from the lever.

Step 3: Use a wrench to take off the nut inside the tank, and remove the handle and lever.

If your toilet has a float cup, just squeeze the clip on the side with your thumb and forefinger and inch the cup down a little.

Once adjustments have been made, flush and make sure the water level is below the overflow tube but not so low that the bowl is too empty.



Observation: Water level's fine, and when you push down on the flapper with a stick, the trickling noises stop.

Problem: Your flapper's shot. It might just be gunked up with mineral residue, or it might be worn out. Either way, you need to get it out of the tank.

To replace a flapper, turn off the water, flush to empty the tank, and take the chain off the hook. Unhook the flapper from the bottom of the overflow tube and slide it up the tube to remove it.

If your flapper is gunky, clean it thoroughly. Then slide either the clean flapper or a new one down into position at the base of the overflow tube. Make sure the flapper fits tightly into the bottom of the tank. Rehook the chain and turn the water back on.

Replacing a Toilet's Wax Ring

If you've ever lived somewhere with a bathroom that just *stank*, no matter what you did, you've already learned a lesson about the importance of a toilet's wax ring. Squished between the porcelain and the floor, the ring keeps the toilet stable and prevents water (and smells) from leaking out.

If you notice water coming from the base of your toilet, consistent sewer-y odors, or if the toilet rocks while you're on it, replace the ring pronto.

Equipment:

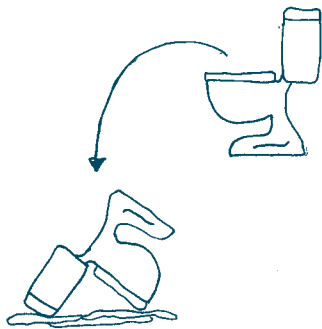
- | | |
|-----------|----------------|
| * plunger | * putty knife |
| * rags | * new wax ring |
| * wrench | * a helper |

Step 1: Turn off the water supply going to the toilet, flush a few times to make sure all the water is out of the tank, and use a plunger to push any remaining bowl water into the pipes below. Have a few rags handy to clean up any spills.

Step 2: Use a wrench to remove the nut connecting the toilet to the water supply line.

Step 3: Remove the plastic caps covering the nuts that hold down the base of the toilet. Remove the nuts as well.

Step 4: Pick up that toilet! Yep. You should get a helper. Turn the toilet over and rest it, upside down, on plenty of rags or newspaper.



Step 5: Hey, guess what? That old wax seal probably looks disgusting. Use a putty knife to scrape away as much nasty wax as you can from the bottom of the toilet and the flange (the area on the floor around the pipe).

Step 6: Take your nice, new, clean wax ring and place it, wax side down, onto the bottom of the toilet. Press the ring a little so that it won't fall off when you turn the toilet back over.

Step 7: Pick up the toilet again (oy), turn it over, and carefully place it back on

top of the flange. Go slow and make sure the bolts on the floor align with the holes in the base of the toilet.

Step 8: Time for a rest! Sit on the toilet (KEEP YOUR PANTS ON) and rock around a little. Your weight will compress the new wax ring and help it squeeze into all the nooks and crannies it needs to.

Step 9: Replace the nuts on the toilet's base, tightening each nut a little at a time. (Careful you don't tighten too much; it could crack the porcelain.) Reconnect the water supply and tighten that nut as well.

Step 10: Double-check all your nuts and water connections, and if they're secure, turn the water back on.

Step 11: Mop your floor.

Home Repair Resources

Dare to Repair: A Do-It-Herself Guide to
Fixing (Almost) Anything in the Home

by Julie Sussman & Stephanie Glakas-Tenet
New York: Harper Collins, 2002

This Old House Essential Home Repair:
A Seasonal Guide to Maintaining Your
Home

New York: This Old House Books, 1999

Yankee Magazine's Make It Last: Over 1,000
Ingenious Ways to Extend the Life of
Everything You Own

by Earl Proulx

Emmaus, PA: Yankee Books, 1996



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by **Robyn Jasko**

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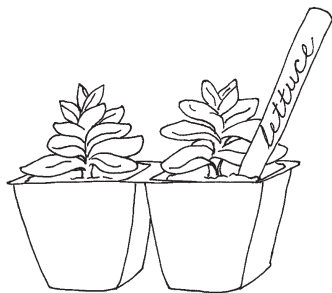
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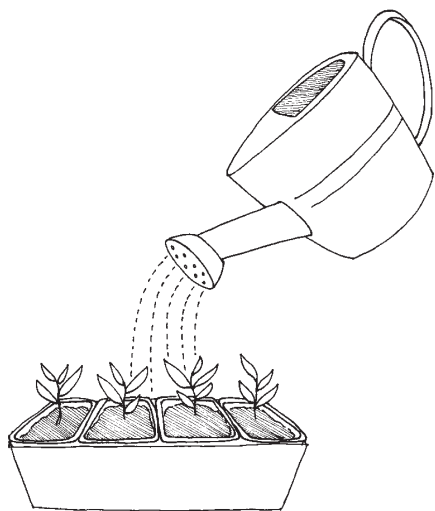
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Chapter 1: Know



WHY GROW YOUR OWN?

There are so many reasons to grow your own food these days. Whether you have a container garden in New York City or a raised bed in suburbia, you can grow your own food no matter where you live, without a huge amount of work. Because, here's a secret: gardening doesn't have to be complicated.

You take some soil and some seeds, and you make food. Making food means you don't have to go to the supermarket. By not going to the supermarket, you aren't contributing to the cycle of food transportation, fuel costs, pollution, and the absurd reality that those tomatoes you see in the store actually came from a country thousands of miles away. But that's just one reason to grow food, here's more:

Homegrown Food Tastes Better

Quite simply, food that you grow tastes a lot better because it wasn't sprayed with pesticides and it didn't sit in a truck that was driven across the country. And, by growing your own, you'll have access to culinary varieties that your regular supermarket doesn't even carry. Purple basil, heirloom garlic, yellow beets, blue pumpkins—just think of the amazing dinners!

It's Fun

Growing, making, and storing food is also rewarding, and a perfect way to add some balance to our stressed out crazy world. There are actually studies that support this—even just five minutes of putting your hands in the soil can give you a better perspective and improve your mood.

Rising Food Costs

We almost can't afford to *not* grow our own food these days. And, food costs are expected to keep going up, doubling by 2030, according to a recent study by Oxfam. Growing a small raised bed or even a few tomato plants on a balcony can save a lot of money.

You'll Know Where Your Food Comes From

No more mystery spinach—when you go out back to harvest lettuce or pick basil, you'll know for sure that it wasn't sprayed with heavy duty pesticides, or tainted with ecoli runoff from factory farms.

Kids Love Gardening

And, why not? Gardening is like magic when you think about it. But, more importantly, growing food teaches kids to be self sufficient, and to know where their food comes from. It's easy for kids to think food comes from a supermarket. That's why I love seeing children at the community garden pull up beets with a huge smile on their faces, or look in amazement at the giant pumpkin growing.

Food is power, so it's time to take matters into our own hands and start something. And this book will show you how to grow, store, and make as much food as possible on the cheap.

GROW FOR BROKE

Produce is expensive—and the costs keep going up. Especially for good organic food. Even herbs and salad greens, which can be grown on a windowsill anywhere, anytime, are \$5 for a tiny box. By growing your own, you can save a lot of money, especially if you grow from seed.

Here's an example:

Cost of tomato PLant:	\$3 OR about 25 cents if you grow it from seed
Average POUNDS PER PLant:	10 to 15
COST PER POUND for organic tomatoes at the store:	\$4
COST PER POUND for homegrown tomatoes:	20 to 30 cents (from PLants), OR just 2 to 3 cents (from seed)

or, take beets:

Cost for beet seed Packet:	\$3 for 75 seeds
Average POUNDS of beets PER Packet:	50
COST PER POUND for organic beets at the store:	\$3
COST PER POUND for homegrown beets:	6 cents

And, this doesn't include the high cost of heirlooms—which are usually \$1 a pound more because they taste awesome and come in all sorts of different colors, shapes and sizes.

Not sure how much to grow? Check out our guide on page 17 to figure out how much to grow per person to have enough produce for the year.

HYBRID, HEIRLOOM, ORGANIC, GMO: WHAT'S THE DIFFERENCE?

There are so many terms for seeds being thrown around these days that it can be confusing to know what's what. Here's a quick lowdown:

Heirloom Seeds:

This is a true seed that has been around for at least 60 years, most likely a lot longer. Heirloom seeds are usually open pollinated, meaning that wind or insects fertilize the seed. They'll breed true to their parent plants, so if you harvest seeds and replant them you will get the same variety. Heirlooms are key to having a truly sustainable garden, since you won't have to buy seeds every year and can actually save a ton of money this way.

Hybrid Seeds:

Not to be confused with GMO (genetically modified organisms), hybrid seeds are naturally bred for beneficial characteristics such as disease and insect resistance, new flower types, improved vitamin content in vegetables and grains, and many other characteristics. The downside with hybrids is that their seed doesn't resemble the parent plant, so you cannot reliably save their seeds.

Genetically Modified Seeds (GMO)

GMOs are manmade seeds where scientists insert genetic material into a plant to add a characteristic that is not naturally there. No, it's not a Phillip K. Dick novel, this is happening now, and GMO corn, beets, and soybeans are already at your supermarket.

These seeds are highly controversial. In some parts of the world, they are outlawed. No one knows the longterm ramifications of turning nature into Frankenfood. And while the "official" word from the U.S. government is that such seeds are safe, contradictory evidence indicates otherwise.

GMO crops were created in the 1970s specifically to be resistant to Roundup—a dangerous pesticide that is produced by Monsanto, a company patenting GMO crops. See the connection? New studies are showing that the past 30 years of using Roundup on GMO crops have brought on a new breed of super weeds, which farmers are treating with even more pesticides.

More and more articles are coming out showing the irreversible health and environmental effects GMO crops are having on people and animals as they enter the food supply, but until they are outlawed, we are the guinea pigs. And that's one more reason to grow your own food.

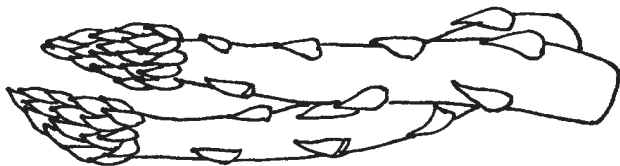
Organic Seeds

Organic seeds are grown, saved, and stored without the use of synthetic fertilizers, pesticides, antibiotics, food additives, GMOs, irradiation, and biosolids in your food. When shopping for seeds, or for produce, choosing organic is definitely the safest way to go and a good way to keep GMOs and pesticides off your plate and out of your garden.

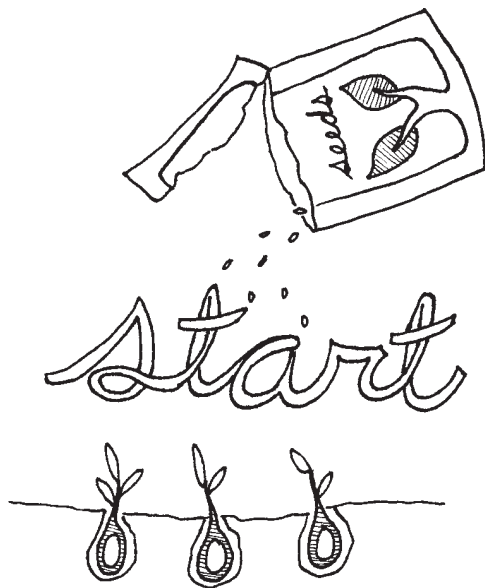
The Great Food Fight

There's a battle going on today for food. Between rising food costs, factory farming causing deadly ecoli runoff on vegetables, and GMOs entering the food supply, growing your own has never been more important.

Every time you buy or eat food you have a choice. And, that choice adds up. So, grow what you can, support local farmers and CSAs (Community Supported Agriculture), and help fight the good food fight!



Chapter 2: Start



STARTING FROM SEED

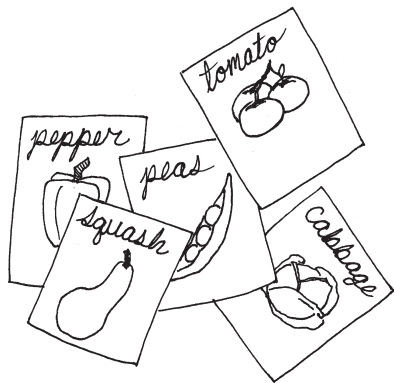
Some people are put off by growing from seed because they think it's too complicated, but it's not that hard at all. You'll save a ton of money versus buying plants, and have access to more varieties than you ever knew existed. Purple carrots, anyone?

Two ways to start a plant from seed:

Direct seed: When you plant the seed directly into the spot in your garden where it will grow. Easy, peasy.

Starting seeds indoors to transplant later: Some plants are frost sensitive and need to be started indoors before going into the garden. This also gives them a headstart when the plant needs a longer growing season (like tomatoes).

Starting seeds indoors is a little more involved—they'll need soil, water, and light—but it can easily be done with a greenhouse kit from the local hardware store. And, they'll look so cute growing on your windowsill!

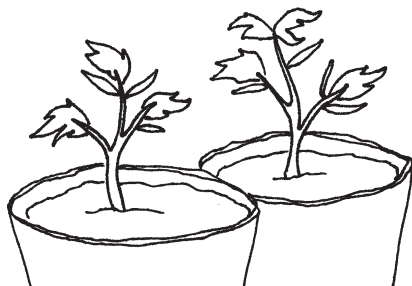


DIRECT SEED VS. SEEDLING

It all depends on the variety. Some plants don't mind being transplanted, but the ones that do, hate it. So, it's good to know who likes what.

Vegetables to direct seed: Beans, beets, carrots, corn, garlic, kale, lettuce, melons, peas, potatoes, radishes, summer squash, spinach, winter squash, and pumpkins.

Vegetables that transplant well: Broccoli, cabbage, cauliflower, celery, eggplant, onions, peppers (sweet and chili), and tomatoes.



Seedlings aren't always faster

Take the pumpkin—if you were to plant a 3-week-old pumpkin seedling and a new set of seeds on the very same day, you'll find that the seeds will catch up and outgrow the seedling, because pumpkins get stressed out about being transplanted (and, I don't blame them). But other plants, like tomatoes, don't mind it at all.

SAVING MONEY WITH SEEDS

Growing plants from seed is definitely the cheapest way to go. Plus, you'll have access to endless varieties, instead of being at the whim of whatever your nearby plant store is selling for \$3 a pop.

Here's a handy example: 1 pack of cucumber seeds (25 seeds): \$2.50
1 cucumber plant: \$3

Cucumbers are very quick to germinate, and super easy to plant from seed. So, if you plant your whole pack of cucumber seeds, and 20 of them make it, that's \$60 worth of cucumber plants for less than the price of one plant. Plus, cucumber seeds will last for up to five years, so save any unused seeds for next year's garden.



Some seed companies like Renee's Garden and Fedco Seeds now offer variety packets so you can mix it up without spending a ton of money.

HOW LONG DO SEEDS LAST?

Seeds are living things, and if stored properly, they stay viable for five years or more depending on the variety.

TYPE OF SEED	seed shelf Life	years
Asparagus		3
Beans		3
Beets		4
Broccoli		3
Brussel sprouts		4
Cabbage		4
Carrot		3
Cauliflower		4
Celery		3
Chard		4
Corn		1
Cucumber		5
Eggplant		4
Kale		4
Lettuce		5
Melon		5
onion		4
Pea		3
Pepper		2
Radish		4
Spinach		4
Summer Squash		4
Tomatoes		4
Winter Squash and Pumpkins		4

Source: Iowa State University, Extension and Outreach, Department of Horticulture



STORING SEEDS:

Keep your extra seed packets in an airtight Mason jar, along with one of those little silica packets that comes in shoeboxes, and store them out of direct light. They'll stay cool and dry until you are ready to use them.

HOW MUCH TO GROW

It's easy to overplant your garden, especially if it's your first. Here's a good guideline of how much to grow per person to have enough to eat fresh, with some leftover for freezing/preserving.

Double these amounts if you want to grow enough food to last you all year long. And, definitely tweak according to what you like best:

Vegetable	PLANTS PER PERSON
Asparagus	10 to 15 plants
Beets	25 plants
Broccoli	4 plants
Beans (bush)	15 plants
Beans (pole)	3 poles
Cabbage	2 to 3 plants
Carrots	10 foot row
Cauliflower	3 to 5 plants
Celery	3 to 5 plants
Corn	15 foot row
Cucumbers	3 to 6 plants
Eggplant	3 to 5 plants
Garlic	15 to 20 cloves
kale	3 to 5 plants
Leaf Lettuce	10 foot row
Melon	3 to 5 plants
onions	15 to 25 plants
Peppers (Hot and sweet)	3 to 5 plants
Potatoes	10 to 15 plants
Radishes	5 foot row
Spinach	5 to 10 foot row
Summer Squash	3 plants
Tomatoes	4 plants
winter Squash and Pumpkins	3 to 5 plants

WHEN TO START YOUR SEEDS

Starting seeds is all about timing. If you start transplants too early they may be rootbound before they get outside. Too late, and they won't be ready to harvest in time. First, figure out when your first/last frost dates are, then use the guide below:

Vegetable	Weeks Before Frost to Start Your Transplant Seeds Indoors	When to Plant Transplants in the Garden	Earliest you can Direct Seed before or after Last Frost
Asparagus	12 to 14 weeks (from seed)	4 weeks before (for crowns)	Not recommended
Beans	Transplanting not recommended	recommended	on Last frost
Beets	Transplanting not recommended	recommended	3 to 6 weeks before
Broccoli	8 to 12 weeks	2 weeks before frost	4 weeks before
Cabbage	8 to 12 weeks	4 weeks before frost	4 to 6 weeks before
Carrots	Transplanting not recommended	recommended	4 weeks before
Cauliflower	10 weeks	4 weeks before frost	6 weeks before
Celery	8 to 10 weeks	4 weeks before frost	on Last frost
Corn	Transplanting not recommended	recommended	on Last frost
Cucumber	3 weeks	1 to 2 weeks after frost	on Last frost
Eggplant	8 to 10 weeks	2 to 3 weeks after frost	on Last frost
Kale	8 weeks before	4 weeks before frost	4 to 6 weeks before
Lettuce	6 to 8 weeks	4 weeks before frost	4 to 6 weeks before
Melons	2 weeks	2 weeks after frost	2 to 4 weeks after
Onions (seeds)	10 weeks before	4 weeks before	4 weeks before
Peas	Transplanting not recommended	recommended	6 weeks before
Peppers	8 weeks	2 weeks after frost	on Last frost
Potatoes	Does not transplant		2 to 4 weeks before
Radishes	Transplanting not recommended	recommended	4 to 6 weeks before
Spinach	Transplanting not recommended	recommended	4 to 6 weeks before
Summer Squash	3 to 4 weeks	Last frost	on Last frost
Tomatoes	6 to 8 weeks	1 to 2 weeks after frost	2 weeks before
Winter Squash	3 to 4 weeks	2 weeks after frost	on Last frost

Source: *The Old Farmer's Almanac*

GROW YOUR OWN SEEDLINGS

Some vegetables, like tomatoes and eggplant, need to be started earlier because they require a longer growing season.

Depending on how much time and dough you have, you can start these yourself or buy them from a local nursery.

Pros of starting your own seedlings:

- Access to more seed varieties
- You'll be saving money versus buying seedlings
- Knowing your plants are 100% organic
- Satisfaction in being totally self-reliant

Cons:

- Time (caring for eggplant and tomato seedlings can be like a part-time job)
- You'll have to dedicate part of your home/apartment to lights and seed setups
- Buying soil and seed starting equipment

But, don't let this deter you—lights and seed starting equipment are a one time price to pay. It's fun to start your own plants from seed and have a little green in March.

Too busy to start seedlings?

These divas are just easier to buy:

- Tomatoes
- Eggplant
- Cauliflower
- Brussel Sprouts
- Cabbage

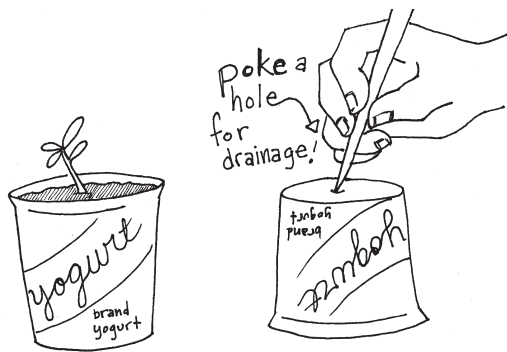
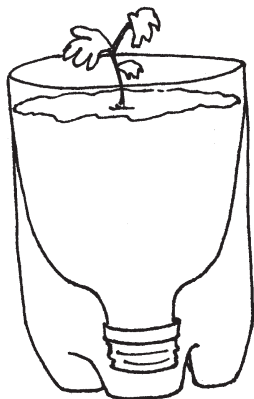
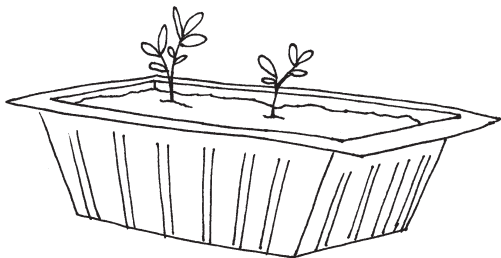
INDOOR SEED STARTING ON THE CHEAP

No matter where you live, you can set up a basic seed starting area without having to spend a lot of money.

Start by checking out your recycling bin—plastic yogurt containers, old salad containers and even egg shells make great seed starters.

Just make sure to poke holes in the bottom of your containers so your seeds have good drainage.

Your seeds don't need light to sprout, but they will need constant moisture and heat. Put them near a radiator or warmer spot in your house.

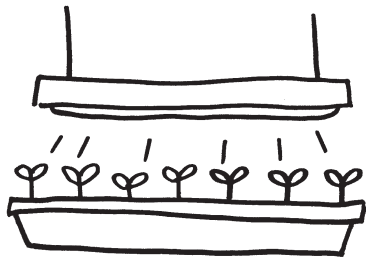


SHINE SOME LIGHT

Once your seeds have sprouted, they will need light right away, preferably 12 to 16 hours a day. You can do this in a number of ways:

-Put them in a super sunny window and near a lamp with a CFL light at night.

-Hover a 4-foot fluorescent shop light above them. (See page 79 for an easy setup you can make at home.)



-Buy a fancy schmancy growlight kit.

If they don't get enough light, they will get leggy and tall, and will be too weak for transplanting. So hook them up!

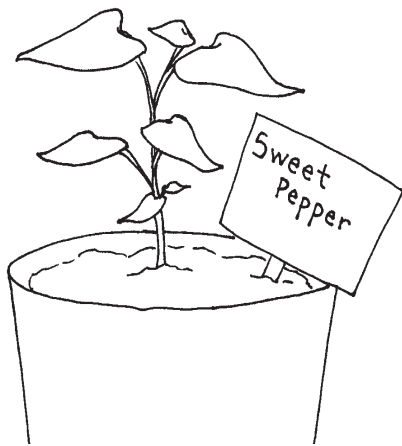
A 4-foot hanging shop light with fluorescent bulbs costs about \$35 at the local hardware store and will give your plants the light they need until they are ready to go into the garden. Plus, you can use it year after year. Florescent bulbs work well because they

emit a lot of light and hardly any heat, so you won't risk burning your plants.

Also, think about where you put them. The first time I used these growlights in my upstairs window, cops were driving by my house multiple times a day, curious as to what I was growing, no doubt.

S E E D GERMINATION TIMES

Seeds germinate at different times and soil temperatures. Here's the average amount of time it takes a seed to sprout:



Vegetable	Days to germinate	optimum soil temp for germination
Asparagus	10 to 14	75 Degrees
Beans	7 to 14	70 to 85 Degrees
Beets	7 to 10	75 Degrees
Broccoli	3 to 10	65 to 75 Degrees
Cabbage	5 to 10	68 to 75 Degrees
Carrots	12 to 15	75 Degrees
Celery	10 to 14	70 to 75 Degrees
Corn	7 to 10	75 to 85 Degrees
Cucumber	7 to 10	70 to 85 Degrees
Eggplant	10 to 12	75 to 85 Degrees
Kale/Collards	5 to 10	70 to 75 Degrees
Lettuce	7 to 10	65 to 75 Degrees
Melons	5 to 10	80 to 85 Degrees
Onions	10 to 14	60 to 75 Degrees
Peas	7 to 14	65 to 70 Degrees
Peppers, Hot	10 to 14	78 to 85 Degrees
Peppers, Sweet	10 to 14	78 to 85 Degrees
Radishes	5 to 7	65 to 70 Degrees
Spinach	7 to 14	70 Degrees
Summer Squash	7 to 14	75 to 85 Degrees
Swiss Chard	7 to 14	70 to 75 Degrees
Tomatoes	7 to 14	75 to 80 Degrees
Winter Squash and Pumpkins	7 to 14	75 to 85 Degrees

Source: Arizona Cooperative Extension, College of Agriculture, The University of Arizona.

**The size of a seed helps determine how quickly it will germinate.
The larger the seed, the faster it will sprout!**

TIME TO TRANSPLANT

Knowing when to transplant your little seedlings outside or to larger containers is an art all in itself. Each vegetable has different growing rates and needs, but there are a few guidelines:

Look for true leaves

OK, these aren't the first set of leaves, but rather the second set, that look like what the plant will become.

Don't wait for roots to come out the bottom

This means they have been growing in the same container too long, and the roots have become tangled and are growing in circles (a.k.a. rootbound). If this happens, you'll need to break up the root before transplanting to help get those roots growing down again.

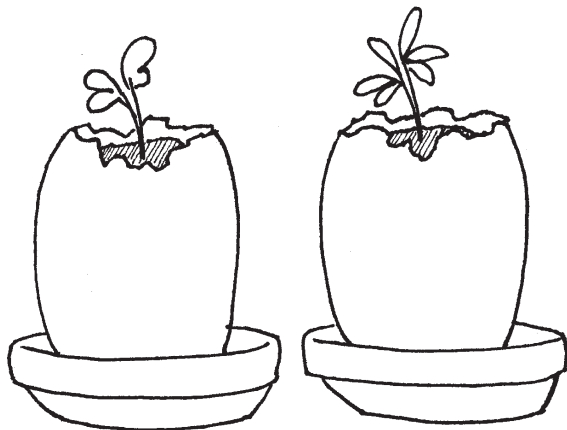
Don't wait too long to transplant

The smaller a plant is, the less shock it will experience.

Usually three to six weeks is enough time for most vegetables to be transplanted.

POTTING UP SEEDLINGS

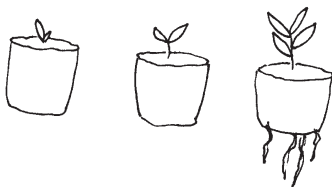
Seedlings like tomatoes, eggplants, and peppers grow fairly quickly, so they will have to move to bigger pots before being put into the garden. Upgrade them to pots that are twice the size that they are in now so they have room to grow.



To transplant into their new pots with as little shock as possible, it'll take a little planning:

Day before:

Water your plants well the night before.



Day of:

Get your new larger pots ready. Thoroughly wet the potting soil after putting it in your new container. Only fill it halfway so the new plant has some room.

How to transplant:

Carefully lift up the plants by the first leaves and support the bottom root side with your other hand. Then, gently put them in their new container or tray.

Cover with more soil and pack it down lightly. Water thoroughly and move to a room with no lights or direct sun.

Day after:

Keep plants in the shade for one full day. This will help them put energy into their roots, not into their leaves.

MOVIN' ON UP: INTO THE GARDEN

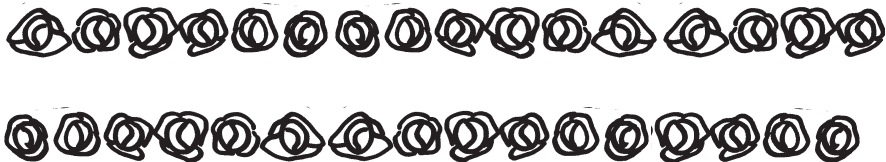
Like people, plants need a chance to adjust to things. You can't just throw them into the garden after being in your cozy warm home for the past month—it's a mad world out there!

For one week leading up to transplant day, let them adjust gradually by bringing them outside for just a few hours, increasing the time each day.



Then, on transplant day:

- If possible, pick an overcast day and plant later in the day, after it cools off. This will help reduce the shock to the plant.
- Add some compost to the bed where they will be planted to give them a good boost.
- Dig a hole that is 2 inches wider and deeper than the plant's container.
- Place plant into the ground, disturbing the roots as little as possible.
- Cover the root of the plant with soil, and leave a small recessed indent at the base so the plant collects more water.



Chapter 3: Grow



Asparagus

Plant asparagus in a sunny spot once and you'll be harvesting it for the next 15 years! If done right, it will come up every spring, and be one of your first harvests.

Stats: Sunny, cold season, 2 to 3 years+, perennial, spring.

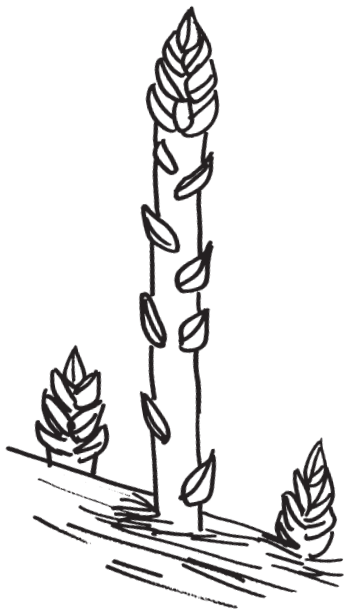
Getting Started: Buy one-year established crowns online, or at a nursery. You can save money by starting from seed, but it will take an extra year for spears to develop and can be tricky. Crowns are your best bet.

Harvest: Early spring through early June.

Companions: Dill, coriander, tomatoes, parsley, basil, comfrey, and marigolds.

Avoid Planting Near: Onion, garlic and potatoes.

Preparation: It's good to give asparagus its own bed, since it will be staying in one spot. Start prepping your asparagus bed as early as possible by double-digging and enriching it with compost.



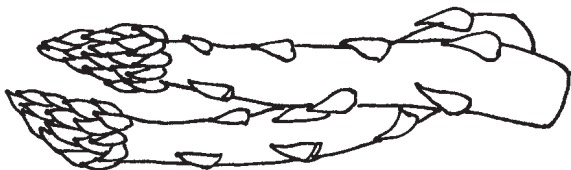
Planting: Asparagus needs to be planted deep down to become established, so start by digging a 12-inch deep trench that's 12 to 18 inches wide. In early spring, set crowns 15 to 18 inches apart in your trench, mounding soil slightly under each plant so crown is slightly above roots. Spread roots over mound, cover crown with 2 to 3 inches of soil and water thoroughly. As plants grow, continue to put soil over crowns (about 2 inches every two weeks) until trench is filled.

Harvest: Asparagus needs to be established, so you don't want to pick it all in the beginning. Don't harvest at all the first year of planting, and harvest lightly the second. Third year on, go for it. Cut spears just under soil surface when 6 to 8 inches tall and before tips separate.

Diseases: Root rot, rust, and purple spot.

Pests: Asparagus beetles, aphids, and cutworms.

After you are done harvesting asparagus, plant tomatoes on either side. They make good pals.



Beans

Beans are some of the oldest grown vegetables on the planet, and one of the most reliable. They grow in a wide range of climates, and produce crisp snap beans or shelling beans, depending on the variety.

Stats: Sunny, warm season, 60 days for bush, 70 days for pole, summer.

Getting Started: Direct seed.

Companions: All beans do well with marigolds, potatoes, catnip, and summer savory. Interplanted bush beans thrive with carrots, beets, cucumbers, and celery, and pole beans with radishes, cucumbers, and corn.

Avoid Planting Near: Tomatoes, chili peppers, sunflowers, onions, garlic, kale, cabbage, and broccoli.



Preparation: Pole beans need trellising for support. Trellises should be 6 to 8 feet tall and sturdy enough to withstand wind and rain.

Planting: Direct seed after danger of frost is past and when soil warms. Beans can rot in cold soil. Plant several crops of bush beans 2 to three weeks apart for continuous harvest. Pole beans generally bear over a longer period of time than bush beans.

Spacing: Sow bush snap beans 4 inches apart, in rows 2 feet apart, and pole snap beans 6 inches apart, in rows 3 feet apart.



Harvest: Pick beans daily to keep plants producing heavily. Or, let beans dry out on the vine before shelling.

Diseases: Blight rust and mildew are prone to set in just before harvest as the weather heats up. Apply a natural fungicide—like a baking soda or apple cider vinegar spray—to help prevent this.



Pests: Aphids, Japanese beetles, Mexican bean beetles, rabbits, and deer.

Think outside the green bean...

Heirloom bean seeds come in a huge variety of colors and sizes, usually with an interesting story to boot.



Beets

Oh, the mighty beet! These nutritional powerhouses are reliable germinators, cold-weather tolerant, and grow just about anywhere—it's no wonder the beet has been around since the rise of Rome.

Stats: Sunny to partial shade, cold season, 45 to 80 days, spring/fall.

Getting Started: Direct seed.

Preparation: Can also sow seeds indoors about six weeks before last heavy frost and then transplant into garden in early spring.

Companions: Catnip, bush beans, onions, garlic, mint, lettuce. Interplant beets and kohlrabi for better growth.

Avoid Planting Near: Pole beans.

Planting: Sow seeds every three weeks for continuous harvest. Stop in midsummer and then seed again in fall about ten weeks before last frost.

Spacing: 2 to 3 inches between plants, 12 to 18 inches between rows.

Harvest: Pull beet roots when they are 2 to 3 inches in diameter. Any larger and they may become woody.

Diseases: Mildew and leaf spots are rare, but they do happen.

Pests: Slugs, snails, cutworms, squirrels, voles, rabbits, and deer.

Each beet seed is actually a fruit pod with a cluster of seeds. When they are about three weeks old, thin the extra beet sprouts and use them as microgreens or add to salads.



Broccoli

Everyone's favorite sidedish, broccoli is rich in vitamins A, B, and C, as well as calcium, phosphorous, and iron. And, since it's so frost hardy, you can grow it in both spring and fall.

Stats: Sunny, cold season, 50 to 90 days, spring/fall.

Getting Started: Start seeds inside six to eight weeks before planting outside, or buy seedlings.

Preparation: Broccoli likes rich, well-drained soil with lots of organic matter.

Companions: Potatoes, beets, onions, celery, Geraniums, dill, rosemary, nasturtium, and borage.

Avoid Planting Near: Mustards, tomatoes, peppers, pole beans, and strawberries.

Spacing: 15 to 18 inches between plants, in rows three feet apart.

Harvest: Cut off the main head, and then continue to harvest sideshoots all season.



Diseases: Broccoli is pretty disease resistant.

Pests: Aphids, cabbage loopers, and slugs are major culprits.

Tips: Use row covers for an even earlier harvest.

Broccoli tastes best when it has had a little frost. And don't worry about it having a central nervous system, that's a myth!!

Cabbage

Hmmm. Sauerkraut anyone? This cold weather favorite stores well and is one of the most nutritious veggies around.

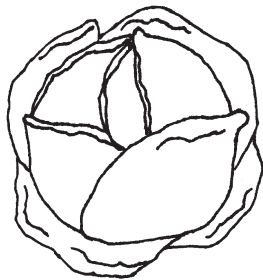
Stats: Sunny, 75 days, spring/fall.

Getting Started: Transplants are way easier, but cabbage can be direct seeded five weeks before last frost.

Companions: Celery, onions, potatoes, chamomile, geraniums, dill, and rosemary.

Avoid Planting Near: Mustard greens, tomatoes, peppers, strawberries, pole/runner beans, and kohlrabi.

Preparation: For spring planting, use early varieties that mature rapidly. Late varieties are best for summer/fall planting.



Planting: After transplanting, reduce weed competition with mulch.

Spacing: Cabbage likes some room—the closer they are planted, the smaller the heads. Space them out 15 to 18 inches between plants and 30 to 36 inches between rows for nice size heads.

Harvest: Pick when cabbage feels firm and has reached the size you want (between softball and basketball is usually about right). Heads can also be left in the garden for an extra two weeks in summer or three to four weeks in fall, just don't let them bake or freeze!

Diseases: Cabbage doesn't like humid weather and may rot in the heat.

Pests: Cabbage worms, aphids, slugs, and snails.

BTW—Cabbage has more Vitamin C than an orange!

Carrots

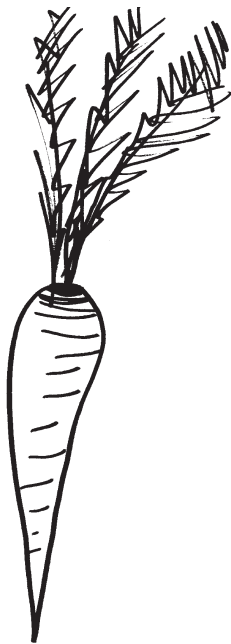
Super easy to grow from seed, carrots come in all shapes, colors and sizes, so look for heirloom varieties to mix it up.

Stats: Sunny to partial shade, 70 to 90 days, spring/fall.

Getting started: Direct seed.

Companions: Onions, leeks, garlic, lettuce, and rosemary. Interplant with peas, radishes, and sage to improve flavor.

Avoid Planting Near: Dill and anise.



Preparation: After transplanting, mulch to conserve water and reduce weeds.

Planting: Carrots don't love hot weather, so do your first planting early in spring. Then, plant every four weeks for continuous harvest.

Spacing: 6 inches between plants, 18 to 24 inches between rows.

Harvest: Check around the roots to see if carrots are the size you want. If so, pull up carrots with a spade. It's better to pick carrots early when they are sweetest.

Diseases: Carrots are pretty disease resistant and hardy.

Pests: Carrot rust fly, deers, voles, woodchucks, and rabbits (of course!).

Bonus: If you cover your fall carrots with straw, they'll overwinter for an early spring harvest.

Cauliflower

The diva of the vegetable garden, cauliflower has special needs, but is so worth it in the end. All you need is patience (and a few closepins) and you'll have the brightest cauliflower on the block.

Stats: Sunny to partial shade, 65 to 90 days, spring/fall.

Getting Started: You can direct sow six weeks before frost, but buying seedlings is easier.

Companions: Celery.

Avoid planting near: Tomatoes and strawberries.

Planting: Cauliflower hates transplanting, so be gentle.

Spacing: The more space you give, the bigger the heads, so give cauliflower about 15 to 18 inches between plants and 30 to 36 inches between rows for nice sized heads.



Tie it up: Although cauliflower is supposed to self blanch to keep the heads white and bright, it needs a little help sometimes (and who doesn't?) When heads are about 2 inches wide, gather up the leaves over the head and tie them up with a clothespin or twine.

Harvest: Cut off entire head with a sharp knife or pruner when it reaches full size or just before.

Diseases: The head of the cauliflower will rot in hot, humid weather. That's why the clothespin trick helps.

Pests: Cutworms, cabbage worms, and loopers.

Celery

Crunch, crunch, crunch—everyone loves a little celery. This negative calorie veggie is high in nutrition, too. Some even say it has a serious calming influence and helps regulate the nervous system.

Stats: Sunny, 120 to 150 days, spring.

Getting started: Celery is tricky to start from seed, transplants are your best bet.

Companions: Cabbage family, leek, onion, spinach, and tomato.

Avoid Planting Near: Corn.

Planting: Transplant outside after all danger of frost has passed.

Spacing: One foot apart, in rows 2 to 2 1/2 feet apart.

Harvest: For a longer harvest, don't cut the entire plant. Just start by picking the outer stalks.

Diseases: Slugs, aphids, leafhoppers, and celery flies.

Pests: Fursarium wilt, leaf spot, and blight.



Chili Peppers

Originating in the Americas, chili peppers have been used as food and medicine since 7500 BC. They all have different levels of heat, from the totally mild, Aji Dulce, to the raging Bhut Jolokia (a.k.a. ghost pepper).

Stats: Sunny, 80 to 120 days, summer.

Getting started: Buy transplants or sow seeds indoors six to eight weeks before transplant date.

Companions: Basil and tomatoes.

Avoid Planting Near: Beans, kale, collards, and brussel sprouts.

Planting: Mulch to conserve water and reduce weed competition.

Spacing: 15 inches between plants, 30 inches between rows.



Harvest: Hot peppers will ripen and change color when they are ready to be picked. Cut peppers, don't pull them when harvesting to avoid breaking stems. If frost is coming soon, you can also pull the entire plant and hang it upside down to ripen.

Diseases: Bacterial spot, powdery mildew, and damping off.

Pests: Slugs, snails, aphids, whitefly, and nematodes.

Corn

Popcorn, tortillas, cornbread—corn is a good old American staple. But sadly, most of the corn grown in the United States is genetically modified (86% in 2010!). Pick heirloom or organic varieties to be on the safe side.

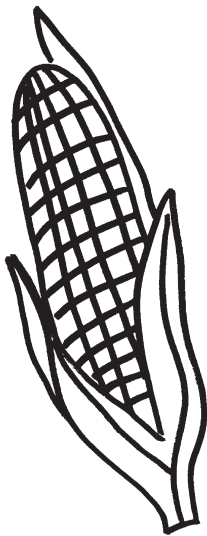
Stats: Sunny, 65 to 100 days, summer.

Getting Started: Direct seed.

Companions: Beans, sunflowers, legumes, peas, peanuts, squash, cucumbers, pumpkins, melons, amaranth, white geranium, lamb's quarters, morning glory, parsley, and potatoes.

Avoid Planting Near: Tomatoes and celery.

Preparation: Corn gets super tall, so don't plant it where it will shade out other plants.



Planting: Corn likes friends, so plant in rows so it has support.

Spacing: 9 to 12 inches between plants and 2 to 3 feet between rows. Plant a minimum of three rows side by side to ensure good pollination.

Harvest: Sweet corn is ready for harvest about 20 days after first silks appear. Husk will be green. Not sure if it's ready? Puncture a kernel and if the liquid is clear, the corn is immature; If it's milky, it's ready to pick.

Diseases: Bacterial wilt rust and powdery mildew.

Pests: Corn ear worms, silkworms, and birds—better get that scarecrow out!

Cucumber

Originating in India, these prolific veggies come in all shapes and sizes, not just your standard green cuke. Check out heirloom cucumbers like Lemon, Poona Kheera, and Armenian cucumbers for some interesting varieties.

Stats: Sunny, 55 to 70 days, summer/fall.

Getting Started: You can buy seedlings, but direct seeding is easy.

Companions: Corn, radishes, peas, beets, carrots, nasturtiums, dill, marigolds, and sunflowers.

Avoid Planting Near: Tomatoes, potatoes, and sage.

Preparation: If transplanting, you can sow seeds indoors three to four weeks prior.

Planting: Seed after danger of frost has passed and the soil is warm.

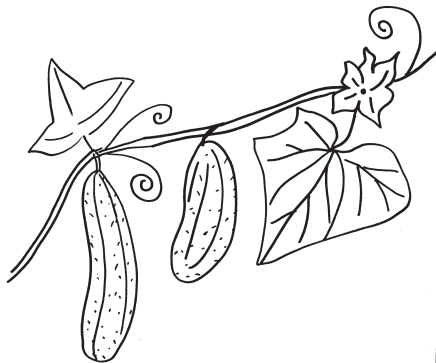
Spacing: 12 inches between plants, 4 feet between rows; or 2 to 3 plants per hill, with hills 3 feet apart. If trellised, plant 5 seeds per foot in rows 30 inches apart.

Harvest: Can be harvested at 2 inches long to any size before they turn yellow. Harvest by turning cucumber parallel to vine and giving a quick snap.

Diseases: Cucumber mosaic, powdery mildew, and leaf spot.

Pests: Cucumber beetle and squash vine borers are the main culprits.

You can grow cucumbers vertically in smaller spaces, and have fresh cukes all summer long.



Eggplant

It's hard to believe, but until a few centuries ago, eggplant had a bad wrap, and was thought to produce insanity by Europeans. Thankfully, that's been debunked, because eggplants are downright tasty in Italian, Indian, and Mediterranean cuisines. Long live the eggplant!

Stats: Sunny, 75 to 100 days, summer.

Getting started: Transplants are easiest, or start seeds indoors eight to nine weeks before setting out.

Companions: Bean, peppers, marigolds, tarragon, and mints. Green beans especially help repel the Colorado potato beetles that love to chomp on eggplant.

Planting: Transplant after danger of frost.

Spacing: 18 to 24 inches between plants, 3 feet between rows.

Harvest: Pick early—if you leave mature eggplants on the plant they will stop producing. Look for eggplants with glossy skin that are about 2/3 their maximum size.

Diseases: Bacterial wilt and leaf spot.

Pests: Potato beetles, whiteflies, red spider mites, and aphids.



Garlic

It's no wonder Egyptians worshiped garlic and placed clay models of garlic bulbs in the tomb of Tutankhamen—homegrown garlic is worlds better than what you get in stores today. And, it's super easy to grow your own. Give it a try!

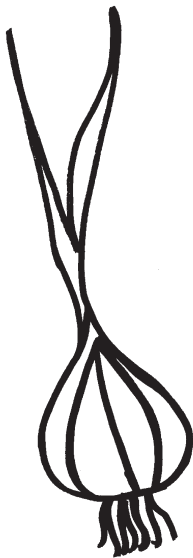
Stats: Sunny, 9 months, summer/fall.

Getting started: Score garlic cloves from a reputable nursery, or buy online. Each garlic clove becomes a new head.

Companions: Peppers, lettuce, beets, potatoes, cabbage, broccoli, kohlrabi, carrots, tomatoes, and strawberries.

Avoid Planting Near: Beans, peas, and sage.

Preparation: Garlic is planted in fall, and then harvested the next summer. (Columbus day planting and July 4th harvesting is the old adage.) So, get your beds ready at the end of September/October, and order your garlic early, because it sells out quick.

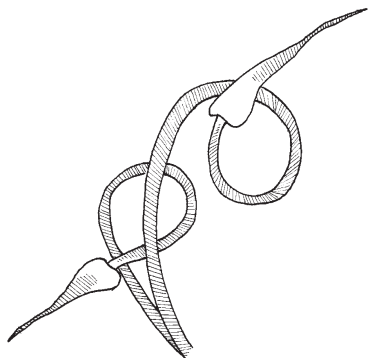


Planting: Break apart bulbs just before planting. Insert individual cloves, root side down, about 2 inches deep. Cover with dirt, and mulch with straw or leaves.

Spacing: 4 to 6 inches between cloves, 2 feet between rows.

Water: Garlic likes about 1 inch a week. It's best to withhold water two weeks prior to harvest, if possible.

Before Harvest: About four to six weeks before harvest, hardneck garlic produces a “scape” that coils. This scape is really a flower bud—you need to cut it off so the garlic puts its energy back into the bulb and they size up. Don't worry, the scapes are totally edible and delicious. Sauté them up or make pesto. Yum.



Harvest: You'll know when the garlic is ready to harvest in summer when 2/3 of the plant's leaves have yellowed. Loosen soil with a garden fork and lift, don't pull, each bulb (they may break if yanked out). Hang and cure in a dark, ventilated place for one month.

Diseases and Pests: Garlic is resistant to most diseases and pests, and can prevent Japanese beetles and deer from chomping on plants near it.

Tips: Largest cloves produce largest bulbs.

If you planted your garlic early enough in the fall, it may start shooting up early—don't worry, this is normal, and with mulch, it will overwinter and pick back up in spring.

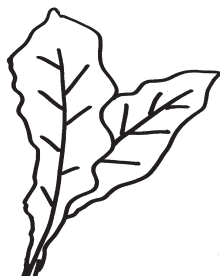
Scapes! When you see these, cut them and make some pesto by putting them in the food processor with olive oil, parmesan, salt, and pine nuts! Scape pesto is all the rage and it even freezes well.

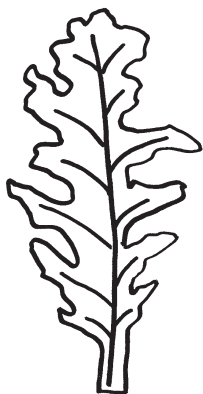
Kale

One of the hardiest greens around, many a peasant ancestor relied on kale to get through the winter. And, you should too—it's mighty good for you, and delicious in soups, salads, and yes, even smoothies.

Stats: Sunny, 45 days, spring, summer/fall/winter.

Getting started: Kale is easy to direct seed. Or, you can start seeds indoors and transplant into the garden four weeks before the last frost. Make repeat plantings every four weeks to have kale much of the year.





Companions: Mustard greens and catnip.

Spacing: 12 inches between plants; 24 inches between rows.

Diseases: Kale is pretty resilient to disease, which might be why it's so good for us too!

Pests: Aphids and cabbage loopers.

Harvest: To have a continuous harvest, pick the outside leaves at the base of the plant without disturbing central growing tip.

Kale can withstand temps down to 20 degrees, and even lower than that if you use a row cover. It also gets sweeter after a frost.

Lettuce

Lettuce, that quintessential vegetable, is easy to grow, great in containers, and can be harvested almost year-round. It's also one of the most pesticide-absorbant vegetables you can buy, so it's much better to grow your own organically.

Stats: Sunny to partial shade, head lettuce, 60 days; leaf lettuce, 30 days, spring/summer/fall.

Getting started: Direct seed or plant indoors, and transplant four weeks before last frost. Plant a new crop every two to four weeks for lettuce all season. Heading lettuce is easier to grow from transplants, and loose leaf types can just be direct seeded.

Companions: Radish, kohlrabi, beans, and carrots.

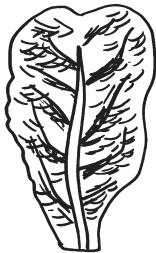
Avoid Planting Near: Celery, cabbage, cress, and parsley.

Spacing: Head lettuce, 12 inches between plants, 2 feet between rows; leaf lettuce, 4 inches between plants, 15 inches between rows.



Harvest: Leaf lettuce can be cut at 5 to 6 inches tall. Head lettuces can be harvested when they form a nice head.

Diseases: Too much heat and sun in the height of summer can make lettuce wilt and rot.



Pests: Slugs and bunnies.

Lettuce doesn't like the heat and may start to bolt or singe in the hottest months. Plant heat resistant varieties in June and July, or interplant long-season lettuces in summer with staked tomatoes, corn or pole beans that will shade lettuce during the hottest part of the day.

Melons

Growing melons is so much fun, and they are great to bring to summer parties. Short on space? Plant them in containers and watch them grow up your trellises or fire escape.

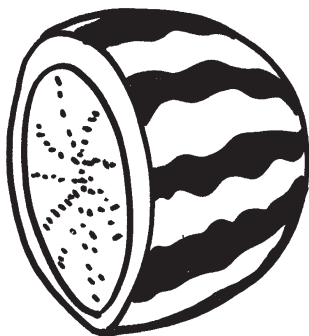
Stats: Sunny, 70 to 105 days, summer.

Getting started: Plant seeds directly into the garden when the soil reaches 65 degrees, or plant indoors two to four weeks before last frost. Melons germinate fast, so they will be ready to transplant when threat of frost has passed.

Spacing: Melons take up a bit of room if grown on the ground. They also like to be grown in groups. Plant melons 4 inches apart, and give 6 feet between rows so they have room to sprawl around.

Container: Plant one melon per container and give them about 4 feet or more to climb up.

Diseases: Powdery mildew and other fungus diseases.





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Pests: Cucumber beetle and the squash vine borer.

Harvest: The melon will be ripe when the stem starts to dry out, and it snaps off easily when you give a twist.

Onions

Easy to grow and store, onions are great because they can be planted anywhere, and harvested early as spring onions.

Stats: Sunny but will tolerate some shade, 85 to 120 days, spring/summer/fall.

Getting started: Seeds should be started indoors ten to twelve weeks before last frost. If your season is not long enough for starting from seed, try sets—they are much easier to grow, and usually grow bigger onions.

Companions: Fruit trees, tomatoes, peppers, potatoes, cabbage, broccoli, kohlrabi, carrots.

Avoid Planting Near: Beans, peas, and parsley.

Preparation: Make sure soil is rich and well drained.

Spacing: Plant 1 to 6 inches apart and 1 to 2 feet between rows. You can also plant wide rows, with 4 inches between plants.

Harvest: Pick green onions anytime when the tops are 6 inches tall. For full bulbs, you'll know they are ready to harvest when 2/3 of the tops have browned and fallen over.

Eat right away, or cure for storage by leaving them out for several days to dry, then hang them in a well-ventilated room out of direct sunlight for two weeks. Leave at least 1 inch of top on when storing.



Diseases: Resistant to most diseases.

Pests: Onion fly maggot.

Tips: To grow scallions, plant onion seeds close then thin as needed.

Long Day vs Short Day Onions

On the hunt for onion seeds or sets, you'll notice most catalogues refer to long or short day onions. This is a regional thang, and you should pick onions that will grow well in your area:

Northern Gardeners: Long Day Onion

These begin to form a bulb when they get 14 to 16 hours of daylight. Varieties include Walla Walla and Red Zeppelin.

Southern Gardeners: Short Day Onions

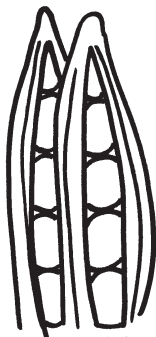
Onion varieties like Texas Grano and Crystal Wax require will begin to bulb when there is 12 to 14 hours of daylight.



Peas

Productive and resilient, peas are one of the first vegetables you can plant in early

spring. Try growing snap peas up a trellis or chain link fence and then just go and munch on them right off the vine. So good!



Stats: sunny, 50 to 70 days, spring/fall.

Companions: Carrots, cucumbers, corn, turnips, radishes, beans, and potatoes.

Plants to Avoid: Onions, garlic, leeks, and shallots.

Preparation: Treat seeds with bacterial inoculant prior to planting for better germination. Also, trellising is needed for most peas.

Planting: Direct seed in early spring.

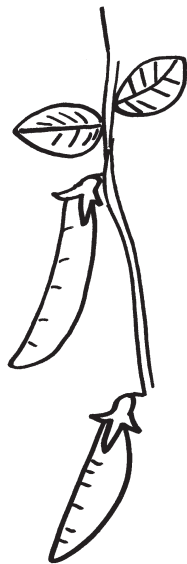
Spacing: Plant three to six inches apart in double rows. Peas do not suffer from crowding. Double rows can be spaced two to three feet apart.

Harvest: Shelling peas and sugar snap peas are ripe when pods fill out. Pick snow peas when pods are pliable but seeds have not enlarged. Pick every day during short seasons.

Diseases: When it's hot, there is small chance of getting powdery mildew. Just use your organic fungicide spray if so (see page 75).

Pests: Birds love eating pea shoots off the vine too.

Pick peas carefully with two hands—one holding the stem and the other plucking off the pod.



Sweet Peppers

For the high price you pay for peppers at the store, you'd think they'd be hard to grow. But, they aren't tough at all, and do quite well in containers.

Stats: Sunny, 50 to 70 days, summer.

Getting started: Transplants are the easiest way, or start inside eight weeks before last frost. Peppers like it warm, so plant outside two weeks after last frost to be on the safe side.

Companions: Basil, tomatoes, geraniums, and petunias.

Plants to Avoid: Beans, kale, collards, and brussel sprouts.

Spacing: Peppers get pretty big—give them about 15 inches between plants and 30 inches between rows.

Harvest: Pick sweet peppers when they reach full size, and intended color.

Tips: Cut rather than pull to avoid breaking branches.

Diseases: Bacterial wilt or fungal problems (like leaf spots and curling). Natural fungicide to the rescue!

Pests: Cutworms and flea beetles.

Once they start fruiting, peppers get a little top heavy. Give them some love by hooking them up with bamboo supports or wire cages to keep them standing tall.

Potatoes

With origins tracing back to the Andes Mountains of South America, the potato is relatively easy to grow and doesn't take up too much space. There's even a no-dig method that just uses straw!

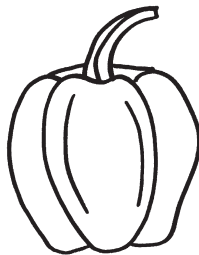
Stats: Sunny, 60 to 120 days, summer.

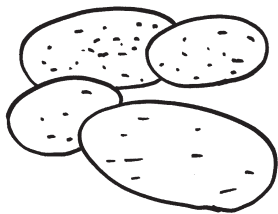
Getting started: Buy potato seeds from a reputable nursery or seed company. Choose heirloom varieties for spuds in different colors and sizes. Fingerlings are just a smaller variety of potato, and are seriously tasty.

Companion: Horseradish.

Plants to Avoid: Sunflowers, tomatoes, and cucumbers.

Preparation: If seed potatoes are the size of an egg or smaller, plant whole. Cut larger potatoes into 2-inch pieces that have 2 or 3 eyes on each piece. Cut them a day or two before you plant so they have time to cure.





Planting: Grow potatoes in soil with a pH between 5.0 and 6.0. Potatoes grown in a soil with a higher pH are prone to a disease called “scab,” which produces rough spots on the potato. Adding compost or peat will help. Don’t plant potatoes where tomatoes or eggplant were grown the year before. These are in the same family as potatoes and can attract similar pests and problems.

Traditional Trench Method: Dig a shallow trench, about 6 inches deep and place seed potatoes in with eyes facing up. Cover with a couple inches of soil. As they grow, gather dirt towards the center of your trench to create a hill around the leafy plant. Keep hilling for every 4 to 6 inches of new growth. Stop hilling when plants begin to flower.

Straw Bale/Mulch Method: This is one of the easiest ways to grow potatoes, and requires no digging or heavy cleaning when you harvest. First, loosen soil and lay potatoes on top. Then, cover potatoes with a good 6 inches of organic material, such as straw or leaf mulch. As plants grow, continue to hill up with mulch.

Spacing: 12 to 18 inches apart, depending on type. Fingerling plants can get quite large, so don’t be deceived by their small size—all potatoes do best with 30 inches between rows.

Harvest: The entire crop is ready to harvest when the tops of the plants die back. Harvest carefully, by hand or with a shovel (definitely don’t use a fork, to avoid piercing your potatoes!). Turn the soil over and search through for spuds. You can also leave the potatoes in the ground for a few weeks longer, as long as the ground is not wet.

Diseases: Blight and mildew problems happen if potato plants have poor air circulation.

Pests: Colorado potato beetles—these are not just in Colorado unfortunately!



Tip: Buy certified disease-free seed potatoes. Planting potatoes from the grocery store is a gamble. Besides the disease problem, potatoes, like many produce aisle vegetables, are often treated with a growth inhibitor to keep them from sprouting.

Harvest Cheat: New Potatoes

When the potato begins to flower, you can harvest a few small potatoes (a.k.a. new potatoes) by gently feeling around in the soil near the plant. Don't take too many—you don't want to harm the plant.

Radishes

Eaten raw, chopped in salads, or thrown in soups, radishes are pretty amazing, and ready to harvest in just a month.



Stats: Sunny/partial shade, 25 to 50 days, spring/fall.

Getting started: Direct seed all the way. Radishes are one of the easiest vegetables to grow. It's a little like magic.

Companions: Cucumbers, beans, beets, carrots, spinach, and parsnips

Plants to Avoid: Cabbage, cauliflower, brussel sprouts, broccoli, kohlrabi, turnips.

Planting: Broadcast seed, or plant in rows or blocks. With their sharp bite, radishes repel a lot of bad bugs from chowing down on your plants. Interplant radishes with cucumbers, lettuce, and carrots.

Spacing: Thin to 2 inches apart.

Harvest: Depends on variety. Round types should be harvested when they are the size of a marble. Long narrow types should be harvested when about one inch across.

Diseases: Diseases are rare for radishes.

Pests: Voles and other little critters.

Spinach

Popeye was right (of course): Spinach is a serious superfood that is packed full of nutrition and flavonoids that protect the body from free radicals. And it withstands hard frosts enough to be grown almost year-round.

Stats: Sun to partial shade, 50 to 70 days, spring/fall/winter.

Getting started: Spinach hates transplanting. Direct seed right into the garden by lightly scattering seed about two weeks before last frost. Spinach also loves the cold, so plant early spring, and late summer.

Companions: Celery, corn, eggplant, and cauliflower.

Spacing: Plant 1 inch apart in rows 2 to 3 inches apart. Plant every two weeks for continuous harvest.

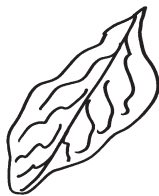
Harvest: Don't cut the whole plant, instead, cut outer leaves as needed so the smaller inside leaves keep growing.

Diseases: Although diseases are rare for spinach grown in home gardens, they have been known to get powdery mildew from time to time. Avoid this by keeping leaves dry and watering at the base of plants.

Pests: Leaf miners and aphids.

Two types of spinach:

Savoy wrinkled & Smooth leaf



Summer Squash

Now you can become that infamous neighbor who is always giving zucchini away because they have so much. Or just keep it all for yourself—it freezes well!

Stats: Sunny, 55 to 75 days, summer/early fall.

Getting started: Start seeds indoors three weeks before frost. Transplant when danger of frost is past. Can also be direct sown six weeks after frost for a second crop.

Companions: Cucumbers, corn, beans, and radishes.

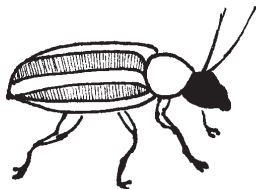
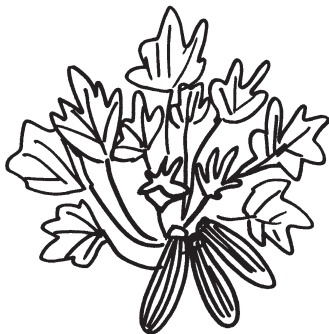
Avoid Planting Near: Potatoes.

Spacing: Plant 2 feet apart, with 4 feet between rows.

Harvest: Pick immature squash, about 6 to 8 inches long for elongated types, 3 to 4 inches in diameter for pattypan, and 4 to 7 inches for yellow crooknecks. Check plants daily once you begin harvesting, and remove old fruit so it keeps producing.

Diseases: Powdery mildew and bacterial wilt. Spray with a homemade antifungal at the first sign of problems (see recipe on page 75).

Pests: Squash bugs will love to feast on your plants, causing wilting and damage. To help avoid an infestation, check under the leaves of your squash plants just as the first flowers are developing, and every few days after for signs of eggs. If you see bright yellow or red eggs under leaves, crush them with a spoon to lower the squash bug population before it gets out of control.



Tomatoes

Everyone's favorite, tomatoes are like the linebackers of the garden. They take up a lot of space, but these prolific plants produce fruit until frost, and are so worth it. Tomato sandwich anyone?

Stats: Sunny, 55 to 80 days, summer.

Getting started: Growing tomatoes from seed is like a part time job. They need a lot of love, lights, and watering at first, and have to be started six weeks before last frost. Buying transplants is definitely easier, but growing from seed gives you more variety.

Planning: For tomatoes all season long, sow a second set of starts four weeks later and plant out three weeks after your first tomato planting. The second crop will pick up just as the first crop starts dying down.

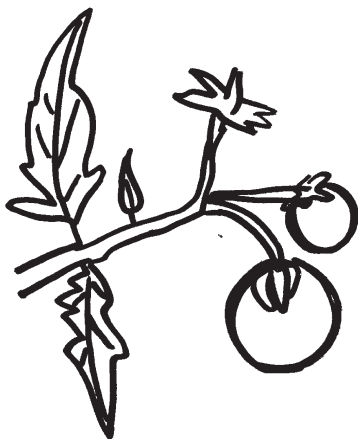
Companions: Carrots, onions, basil, oregano, parsley, marigolds, garlic, celery, nasturtiums, and borage.

Avoid Planting Near: Corn, fennel, peas, dill, potatoes, beets, collards, kale, kohlrabi, cabbage, and rosemary.

Planting: Transplant when danger of frost is past. Set stocky transplants in the ground, covering stems so that only two or three sets of leaves are exposed. Stake plants as they grow up.

Spacing: Plant 30 inches apart, 4 feet between rows.

Harvest: Pick firm but fully vine-ripened fruit.



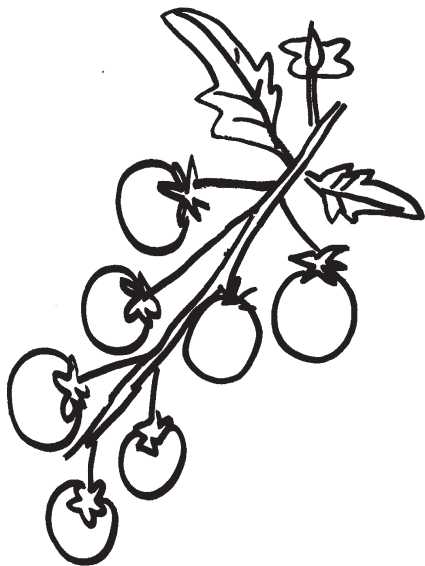
Diseases: Tomatoes are susceptible to various blights, fungal infections, and blossom end rot as the heat and humidity set in. Water at the roots to help avoid disease. They are also sensitive to tobacco mosaic virus, so wash your hands after smoking before touching the tomatoes, and don't smoke near them.

Pests: Cutworms, whitefly, earwigs, and those huge green tomato hornworms.

Tip: If transplants are leggy, plant horizontally. Roots will form along buried section of stem and produce a stronger plant.

Keep harvested tomatoes in shade. Light is not necessary for ripening immature tomatoes.

Indeterminate vs. Determinate: What's this mean?



There are two types of tomato plants:

Indeterminate tomatoes bear fruit over the entire course of a season, growing longer vines that need more support. Most heirlooms and beefsteak tomatoes are indeterminate.

Determinate tomatoes have one large crop all at once. They are also more compact and don't require as much staking, making them great for smaller gardens and containers.

Winter Squash and Pumpkins

From pumpkins to spaghetti squash, winter squash have huge flowers and prolific vines that love to wrap around gardens and will even scale a roof! Check out old school heirloom varieties for some crazy looking variations and colors.

Stats: Sunny, 75 to 105 days, summer/fall.

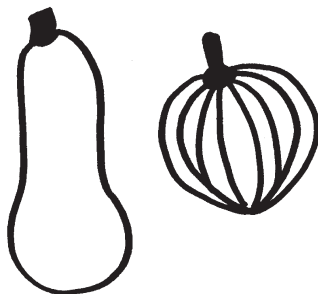
Getting started: Winter squash can be planted indoors two to three weeks after the last frost date in your area, or direct seeded after threat of frost is past.

Companions: Corn and marigolds.

Avoid Planting Near: Potatoes.

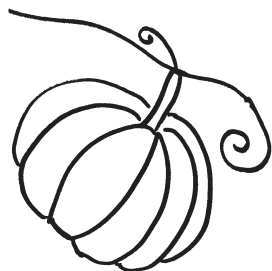
Spacing: Winter squashes need a lot of space to sprawl around, depending on variety.

Harvest: Winter squashes are ripe when they are hard and cannot easily be pierced with a fingernail. Cut your squash about 2 inches from the vine, then set it out to cure for a few days before storing.



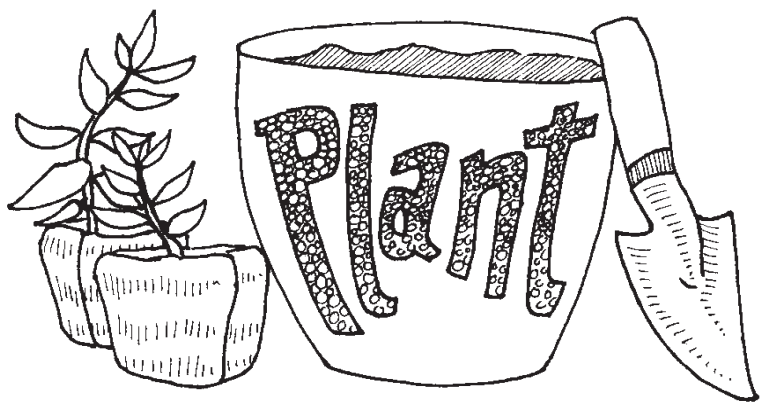
Diseases: Powdery mildew, bacterial wilt, and mosaic virus. Use anti-fungal sprays to prevent these from killing the plants.

Pests: Cucumber beetles, squash vine borers, and squash bugs. Spray with hot pepper/garlic sprays to keep them away.



Want to grow a ginormous pumpkin? Once a solid-looking pumpkin forms on your vine, pick the other flower buds off so the plant puts all of its energy into making one large pumpkin.

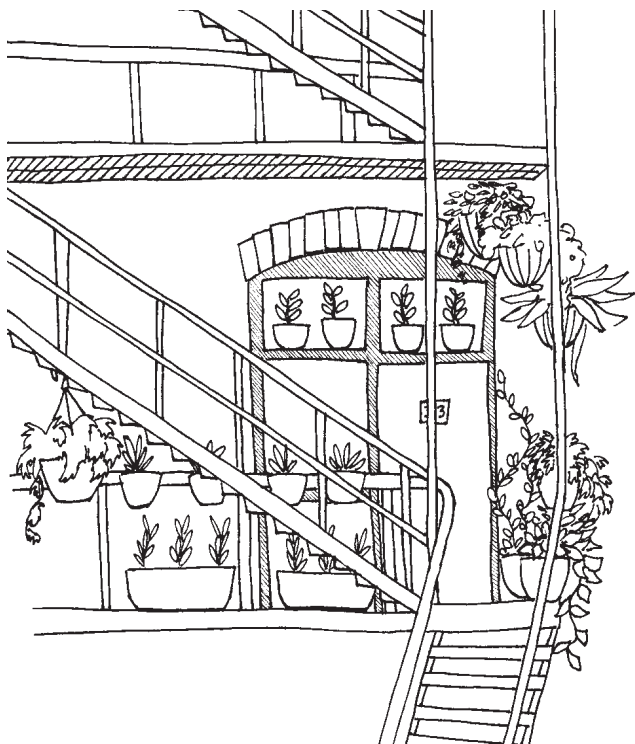
Chapter 4: Plant



GROW ANYWHERE

There are so many ways to grow food these days, you just have to pick the method that works for you and your space. You don't even have to lift a shovel if you don't want to. How much easier does it get than that?

Here are six ways to prep a garden plot so you can grow food anywhere there is sun.



Live in the city?

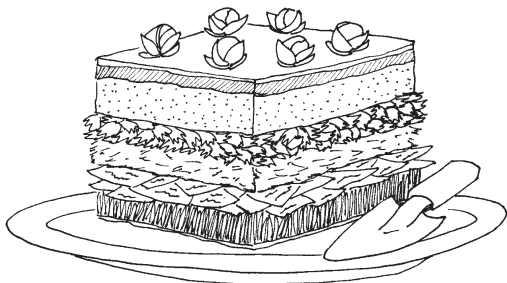
You'd be surprised at how much you can grow on a balcony, rooftop, or fire escape.

LASAGNA GARDENING

When *Lasagna Gardening* by Patricia Lanza came out in the late '90s, it was kind of a big deal.

Her no-dig, no-till, no-weed method of creating a garden by layering newspaper, compost, and organic mulches on top of each other was an amazingly simple way to build a garden on top of grass or an existing bed, without lifting a shovel. And, it works.

The layers create a natural weed barrier while the organic matter enriches the soil to make one kick ass garden bed.



How to Make a Lasagna Garden

Start by choosing a sunny spot where you want to build your lasagna bed. Wet some black and white newspaper sections, and layer them right on top of the lawn in the shape of your new garden or bed, at least five pages deep.

Then, start layering your organic ingredients to build up the bed as high as you want. Water again. Then, plant directly into the lasagna bed and add mulch around your plants. Insta-garden.

Ingredients to Layer for a Lasagna Bed

- Newspapers (black and white, non glossy sections, soy-based ink only)
- Chopped leaves
- Grass clippings
- Compost
- Animal manure
- Coffee grounds
- Straw
- Wood ashes
- Sphagnum peat moss

Many of these ingredients are readily available and, even better, they're free.

DOUBLE DIG IT

Unlike lasagna gardening, double digging is a ton of work, but it pays off in the long run by giving you one of the most primo garden beds you've ever had. Similar to a raised bed, double digging takes it a step further by going 2 feet deep into the soil, giving plant roots plenty of room to stretch out.

Made popular by John Jeavons' book *How to Grow More Vegetables*, double digging creates a deeply aerated, enriched bed that kicks out more vegetables in smaller spaces.

How to Double Dig:

1. Get a friend to help.
2. Dig a trench 12 inches deep (about one shovel-length) the length of your planting area, and save that soil in a wheelbarrow.
3. Loosen the soil at the bottom of the trench and dig in another 12 inches (hence the name, double dig).
4. Add organic material, such as compost, and any necessary soil amendments. (A spading fork works well for this).
5. Dig a second trench parallel to the first trench.
6. Use the topsoil from the second trench to fill the first one, adding more organic matter and mixing it in.
7. Keep double digging the rest of your garden. Use the wheel barrow soil from step 1 to fill in the last trench.

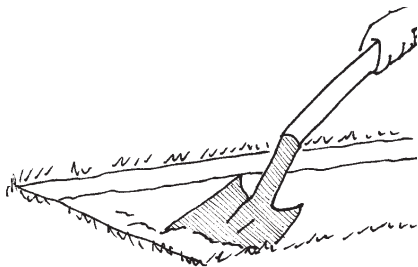


fig. 4:



Then, plant, water, and crack open a beer because that was a lot of work.

fig. 1: remove

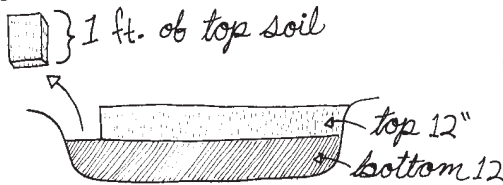


fig. 2: loosen it up!

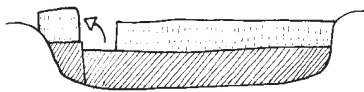
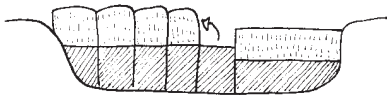


fig. 3: double-digging



How to Remove a Lawn

If you are starting a new bed the double dig way, you'll have to remove the grass first.

Removing the thick carpet of suburbia is no easy task, but there are better ways to do it.

1. Water the area a few days ahead of time to loosen it up.
2. Cut the sod in parallel strips with a flat-end spade.
3. Lift up one end and roll it up.
4. You are ready to start digging or rototilling your plot.

What to do with the grass?

You can either compost it or just let it break down. If you start early enough (say the fall before, or as soon as the ground thaws) pull out the grass, square by square, and flip it upside down, so the dirt side is facing up. The grass will decompose in about a month, and add lots of organic matter back into the soil. Once it breaks down, dig in.

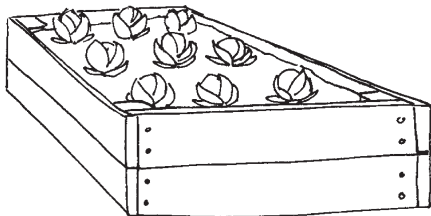
RAISED BED GARDEN

A raised bed is a method of gardening where you contain your garden within a framed structure, add dirt, and plant. You can put these right on top of the lawn, and they make gardening look nice, neat and contained (if you are into that sort of thing).

There are lots of pros to going with the raised bed route—no digging, minimal weeding, and loose soil that is great for growing everything, especially root vegetables.

Raised bed gardens are also a good option if you don't have the best soil since you add your own topsoil, compost, and amendments.

You can customize a raised bed to fit your space by building one with wood or buy a prefab raised bed kit from the interweb or a seed catalog.



PLANT-IN-A-BAG GARDEN

This is probably the easiest no-dig, no-weed, no-brainer way to grow anything that exists. It's also a good fix for people that are super busy, super lazy, or stuck with lousy soil. And, although it looks a little hardcore, you'll be loving those homegrown tomatoes in August when everyone else is paying \$8 a pound for heirlooms.

You can make and plant this soil bag in about 60 seconds.

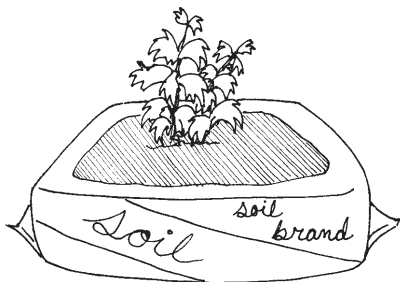
Step one: Get a bag of organic potting soil and lie it flat wherever you want to have a bag of soil with a plant growing in it. Good places include: fire escapes, patios, and rocky areas of your yard.)

Step two: Cut a few slits for drainage on the bottom and a square out of the top.

Step three: Plant your plants. Add water.

That's it. You don't want to overcrowd these—one tomato per bag, or up to four pepper plants. Or, load it up with lettuce, herbs, swiss chard, radishes, whatever you like. The bag will retain moisture better than a container, so you won't have to water as much, just once a week.

Class up your soil bag by putting straw mulch, big rocks, or painted wood boards around it.



STRAW BALE GARDENING

A step up from the bag garden, straw bale gardening is another great no-dig method that reduces weeds, watering, and gives you perfect soil for growing anything. Plus, it's raised off the ground so critters are less likely to chow down on your lettuce.

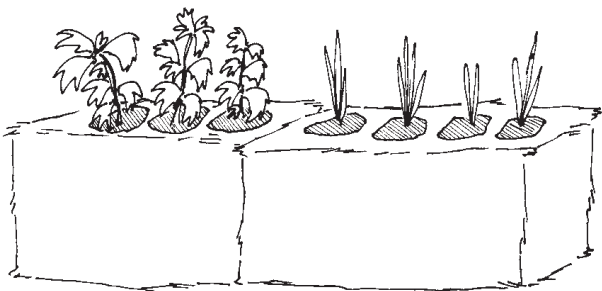
Start by getting a few straw bales. Not, hay—hay has seeds in it that may sprout (and hay is for *horses*). Your straw bale should have twine around it. Leave this on.

Place the straw bale in a sunny spot, wherever you want your garden. Then, soak it good with a hose. This will make it super heavy, so don't plan on moving it after you water it. Leave the bale outside for 5 days or so and let it heat up in the sun so the straw starts to break down a bit. You can also add compost tea to the top to add nutrients into the straw.

After 4 days, the straw should have broken down a bit. Break up the top of your bale with a trowel and remove about six inches of straw from the inside of the top. Replace with organic soil and compost. Plant! Then water like you would a regular garden.

Finding straw bales

I buy my straw bales at the laundromat; where they also sell buffalo meat—don't ask. I live in a quirky town. Point is, once you start looking for straw bales you will find them. Check nurseries, local farms, the paper, craigslist, garden centers, or feed supply stores. They should be three to five bucks a piece.

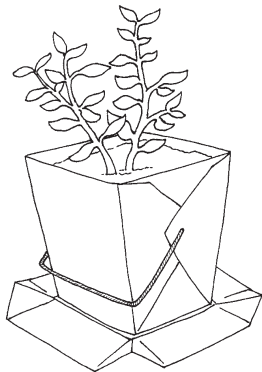


CONTAINER GARDENING

You don't have to be a slave to Whole Foods anymore—you can easily grow a surprising amount of your own organic food in a small space. Do it!

Containers are the perfect option for city gardeners since they take up so little room, and can be grown anywhere there is sun—fire escapes, rooftops, balconies, patios, front sidewalks, you name it.

Almost any vegetable can be grown in a container, but it's important to get varieties that are bred for smaller spaces. With the rise in urban gardening, some seed catalogs even have complete sections and seed collections dedicated to containers. Look for varieties with almost seemingly condescending names like: “dwarf”, “mini”, “baby”, “bush”, “little” for varieties bred for smaller spaces.



Think Outside the Terra Cotta

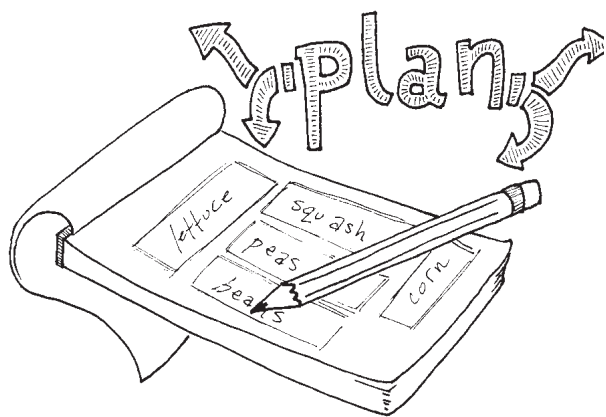
Containers come in all shapes and sizes—you can even reuse soup and bean cans, kitty litter tubs, or whatever else you want to pilfer from your nearby recycling bin. Have fun with it.



The Topsy Torture

OK, we've all seen the infomercials—the Topsy Turvy makes it possible to grow plants upside down, in space, anywhere, just like magic! But, is this technology being used for good? Read *The Secret Life of Plants* and get back to me on that one...the Plant in a Bag is much nicer to your tomato plants and they will love you for it.

Chapter 5: Plan



MAKE A PLAN

Before you start, it's helpful to make a plan of attack. First, scope out your yard or growing space—does it get 6 to 8 hours of sun a day? Is there a fence that you can use as a trellis for cucumbers? A little planning can go a long way. Drawing out a garden plan (in pencil first) is a helpful way to get a good idea of your space, and what kind of food you plan on growing.

CHOOSING WHAT GROWS BEST IN YOUR SPACE

Each plant has different needs—while some love a little bit of shade and part sun, others require 8 hours of sun a day to grow. Here's who likes what:

Plants that love sun (6 to 8 hours)

- Asparagus
- Beans
- Celery
- Cucumbers
- Melons
- Peppers
- Onions
- Squash (winter and summer)
- Tomatoes

Shadier plants (3 to 6 hours of sun)

- Beets
- Beans
- Broccoli
- Cauliflower
- Carrots
- Kale and Leafy Greens
- Lettuce
- Peas
- Brussels Sprouts
- Radishes
- Swiss Chard

The Three Sisters

This Native American tradition of planting corn, beans, and squash together is a prime example of interplanting and companion planting put to good use.

The corn grows tall and becomes a trellis for the pole beans. The beans replace the nitrogen in the soil used by the corn, and the winter squash rambles around below to suppress weeds.



WHAT GROWS WHEN

Unlike the supermarket, where you can buy anything at anytime, each vegetable has a preferred season that it is grown and harvested in, depending on the climate.

Although this may at first seem inconvenient if you have never thought to eat seasonally, you'll notice that food grown locally and in season tastes so much better. Ever had a tomato from the supermarket that tasted like cardboard in December? Start eating seasonally and you'll get the best tasting, most nutritious food around.

Spring	Summer	Fall
<ul style="list-style-type: none">• Asparagus• Beets• Broccoli• Cabbage• Carrots• Cauliflower• Celery• Cucumbers• Kale/Swiss Chard• Lettuce• Onions• Peas• Radishes• Spinach	<ul style="list-style-type: none">• Eggplant• Melons• Tomatoes• Squash (Summer and Winter)• Swiss Chard	<ul style="list-style-type: none">• Brussel Sprouts• Beets• Cabbage• Carrots• Celery• Cucumber• Kale• Lettuce• Radishes

Planting a Second Crop

During the height of the summer, plant a fall crop of cucumbers, cauliflower, kale, cabbage, beets and broccoli—by the time they mature, the temps will have cooled down a bit and you'll have a second harvest in time for Thanksgiving.

SPACING PLANTS

OK, so you've decided what you want to plant, now the question is how many plants can fit in your garden. Those cute little tomato plants you take home can grow to be huge bullies of the garden, so you have to space appropriately so they don't end up overcrowding each other by August.

Mel Bartholomew, the author and guru of the *Square Foot Gardening* movement, has a simple method for spacing out plants based on 12 by 12-inch squares.

Plants that need 12 inches of space:



Asparagus, broccoli, cabbage, cauliflower, corn, eggplant, melons, peppers, squash, and tomatoes.

Plants that need six inches of space:



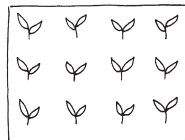
Heading lettuce, cucumbers, potatoes, swiss chard, and kale.



Plants that need 4 inches of space:

Beans (bush), beets, celery, garlic, onion, and spinach.

Plants that need 3 inches of space:



Beans (pole), carrots, leaf lettuce, peas, and radishes.

You can use the same guidelines above for containers, but choose 20 inch containers to give plants a little more room (e.g., 1 tomato plant, or 14 radishes per 20 inch container).

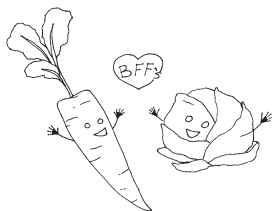
INTERPLANTING

If you are short on space, interplanting can help you get more out of your garden by matching up plants based on light requirements, root systems, nutrient needs, and growth speed. It also means there is less room for weeds.

Sounds like a complicated puzzle, but with a little planning, you can get a lot more out of your garden using this common sense method.

InterPlant _____	with _____
ASPARAGUS	Parsley, tomatoes, Lettuce, or spinach
Beans	Celery, radishes, tomatoes, corn, or squash
Beets	Brussel sprouts, cabbage, kohlrabi, or onions
Broccoli	Beans, onions, or potatoes
Cabbage	Celery, onions, peppers, potatoes, or tomatoes
Carrots	Cabbage, leeks, onions, peas, or radishes
Cauliflower	Lettuce, spinach, or celery
Celery	Beans
Corn	Beans, lettuce, or potatoes
Cucumbers	Celery, Chinese vegetables, lettuce, or okra
Eggplant	Celery, onions, beans, or spinach
Garlic	Cabbage, tomatoes, or garlic
kale	radishes
Lettuce	Broccoli, carrots, onions, corn, parsnips, radishes, cucumbers, cauliflower, or tomatoes
Melons	Bush beans, corn, or radishes
onions	Beans, beets, cabbage, carrots, eggplant, lettuce, peppers, radishes, or spinach
Peas	Beans, cabbage, carrots, lettuce, radishes, spinach, or turnips
PEPPERS	Carrots, onions, or basil
Potatoes	onions
Radishes	Beans, lettuce, melons, onions, peas, or swiss chard

Interplant _____	with _____
Spinach	Broccoli, beans, brussel sprouts, cabbage, cauliflower, eggplant, or onions
Tomatoes	Carrots, lettuce, onions, or basil
Squash, summer	Bush and pole beans, or corn
Squash, winter	Bush beans or corn



Carrots have deep root systems so they make excellent partners for cabbage or onions, which grow above ground.

COMPANION PLANTING

While interplanting is all about getting more out of your space, companion planting takes it a step further, pairing up vegetables that improve each other's growth patterns and their ability to fight off bad insects or diseases.

Like people, it means that some plants are better suited for each other. These dynamic duos work together on a physical level to become power couples of the garden.

Vegetables	Friends	Not Friends
Asparagus	Dill, coriander, tomatoes, parsley, basil, comfrey, and marigolds	onion, garlic, and potatoes
Beans	All beans: marigolds, potatoes, catnip, summer savory, bush: carrots, beets, cucumbers, and celery, pole: radishes, cucumbers, and corn	tomatoes, chili peppers, sunflowers, onions, garlic, kale, cabbage, and broccoli
Beets	Catnip, bush beans, onions, garlic, mint, and lettuce. Interplant beets and kohlrabi for better growth.	Pole beans
Broccoli	Potatoes, beets, onions, celery, geraniums, dill, rosemary, nasturtium, and borage	Mustards, tomatoes, peppers, pole beans, and strawberries

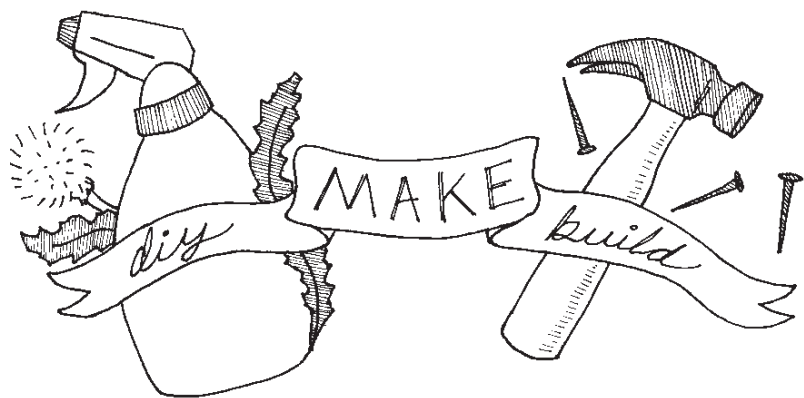
Vegetables	FRIENDS	NOT FRIENDS
Cabbage	Celery, onions, potatoes, chamomile, geraniums, dill, and rosemary	Mustard greens, tomatoes, peppers, strawberries, pole/runner beans, and kohlrabi
Carrots	onions, leeks, garlic, lettuce, and rosemary. Interplant with peas, radishes and sage to improve flavor.	Dill and anise
Cauliflower	Celery	Tomatoes and strawberries
Celery	cabbage family, leek, onion, spinach, and tomato	Corn
Corn	Beans, sunflowers, legumes, peas, peanuts, squash, cucumbers, pumpkins, melons, amaranth, white geranium, lamb's quarters, morning glory, parsley, and potatoes	Tomatoes and celery
Cucumbers	Corn, radishes, peas, beets, carrots, nasturtiums, dill, marigolds and sunflowers	Tomatoes, potatoes, and sage
Eggplant	Bean, peppers, marigolds, tarragon and mints. Green beans especially help repel the Colorado potato beetles that love to chomp on eggplant.	None
Garlic	peppers, lettuce, beets, potatoes, cabbage, broccoli, kohlrabi, carrots, tomatoes, and strawberries	Beans, peas, and sage
kale	Mustards and catnip	Bush and pole beans, and strawberry
Lettuce	radish, kohlrabi, beans, carrots	Celery, cabbage, cress, and parsley
Melons	corn, pumpkin, radish, and squash	potatoes
onions	fruit trees, tomatoes, peppers, potatoes, cabbage, broccoli, kohlrabi, or carrots	Beans, peas, and parsley

Source: Cornell University Cooperative Extension, Chemung County and National Sustainable Agriculture Information Service

Vegetables	Friends	Not Friends
Peas	Carrots, cucumbers, corn, turnips, radishes, beans, and potatoes	onions, garlic, leeks, and shallots
Peppers, chili	Basil and tomatoes	Beans, kale, collards, and brussel sprouts
Peppers, sweet	Basil, tomatoes, geraniums, and petunias	Beans, kale, collards, and brussel sprouts
Potatoes	Horseradish, cabbage, corn, and peas. Eggplant can be a trap crop.	Cucumber, pumpkin, squash, sunflowers, and tomatoes
Radishes	Cucumbers, beans, beets, carrots, spinach and parsnips	Cabbage, cauliflower, brussels sprouts, broccoli, kohlrabi, and turnips
Spinach	Beans, celery, corn, eggplant, and cauliflower	Potatoes
Squash, summer	Cucumbers, corn, beans, and radishes	Potatoes
Squash, winter	Corn and marigolds	Potatoes
Tomatoes	Carrots, onions, basil, oregano, parsley, carrots, marigolds, garlic, celery, nasturtiums, and borage	Corn, fennel, peas, dill, potatoes, beets, collards, kale, kohlrabi, cabbage, and rosemary



Chapter 6: Make



CREATE YOUR OWN SEEDLING POTS WITH NEWSPAPER

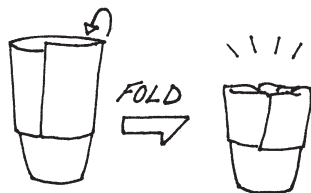
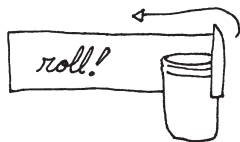
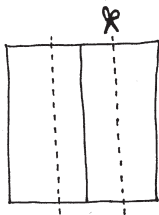
After your seeds have started, these easy-to-make newspaper pots are perfect for transplanting your new seedlings. Forget pricey plastic sets—all you need is some extra newspaper and a small cup or Mason jar and you are on your way.

Get:

- A bunch of newspaper

Step 1.

Cut sheets of black and white newspaper in half or thirds, depending on the size of pot you want to make. Make sure not to use pages with color, since this will be going directly into your garden. (Color newspapers may contain unsafe heavy metals).

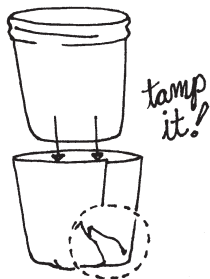


Step 2.

Align your Mason jar or cup with the newspaper so that a few inches of paper are above the opening of the cup. Roll the newspaper so it circles the cup.

Step 3.

Push the sides of the paper that are above the cup's rim inside, so they are wrapped inside the top of the glass.



Step 4.

Remove the cup gently, while still keeping the pot's shape.

Step 5.

Use the bottom of the cup to reinforce the pot's bottom by inserting it inside the newspaper pot. Tamp down the inverted ends, so it seals the bottom.



ta da!

Step 6.

Add soil and transplant or start your seedlings.

When they reach the size for transplanting outside, they can be placed directly into your garden. This will also alleviate root disruption for healthy, happy seedlings!

EASY DIY RAIN BARREL

Save water, save time, and save money by making your own rain barrel this year.

No need to shell out hundreds of bucks for those rainbarrels in catalogues—you can make one on the cheap with a single trip to the local hardware store.

Get:

- 55 plastic gallon barrel with an opening and stable base
- Downspout extender
- 3/4" faucet
- Roll of teflon tape
- Caulk
- Garden hose

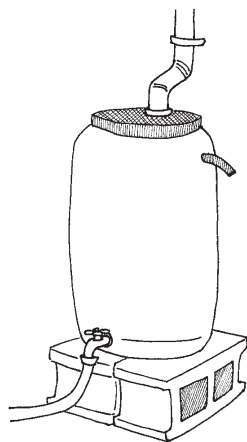
To construct your barrel:

Rain barrels work best if you have a roof to collect water off of (metal roofs work great).

Once you've decided which downspout you'd like to place your rain barrel near, cut the downspout and add the extender. This will then go directly into your barrel.

Cut a hole in the top of the barrel that is large enough for the downspout extender to fit inside.

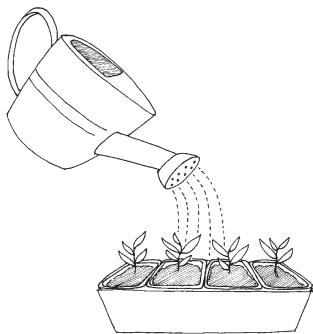
Drill a 1" hole towards the bottom of your barrel with a hole saw or drill bit where you want your spigot, just off the bottom of the container.



Add your spigot

To attach your 3/4" faucet, wrap the threads in tape, caulk the taped thread and insert into the drilled hole. Once it's where you want it, caulk the area inside and outside the spigot well to reduce leakage and let set. If you want to skip this caulking step, get a spigot that just fits right into the 1" hole.

Place your new rain barrel under your downspout extender and wait for rain! When it fills up enough, just turn your spigot and water away.



SIMPLE SEED TAPE

No more fumbling with teeny tiny seeds or crowded rows of carrots! This easy seed tape will help you save seeds, eliminate thinning, and completely decompose in your garden while helping you score perfect rows. Oh, and they are fun to make and give as gifts.

Get:

- 1/4 cup organic flour and enough water to make a paste
- Strips of paper (black and white newspaper, single-ply toilet paper, a paper towel, or a thin paper bag all work)
- A paint brush or toothpick for dabbing drops of the paste
- Seeds! This works great for carrots, radishes, lettuces, flower onions—anything teeny tiny. You can also mix it up and make a companion or interplanting row to be fancy (e.g., alternating carrots, lettuce, and radish seeds).

Step 1.

Cut your paper up into strips.

Step 2.

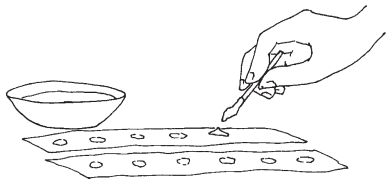
Add just enough water to the flour mixture to make a paste.

Step 3.

Dip your toothpick or paintbrush into the flour mixture and make dots on the paper where you want to put your seeds.

Step 4.

Let it dry overnight. Then, roll up, label, and store in an airtight coffee can or glass Mason jar.



MAKE A PALLET COMPOSTER

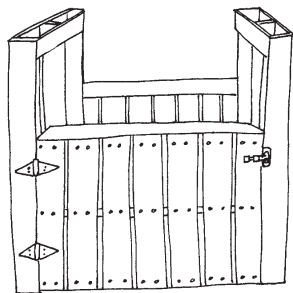
Turn those extra kitchen scraps and leaves into rich compost that your garden will love!

Get:

- 4 wooden pallets of equal sizes
- Metal hinges
- Wooden stake or fence post
- Nails
- A latch

Step 1. Take a pallet and stand it on its long edge to form the back edge of the compost bin. Using a sledgehammer, push a wooden stake or fencepost through the two layers of the pallet at either end for stability.

Step 2. Position the remaining two pallets at right angles to the first to make the sides, butting the corners tightly together to stop compost spilling through the gaps. Fix in place with stake or fencepost like in step 2.



Step 3. Add metal hinges at each corner to reinforce the bin. For the door, use a metal hinge on one side of the last pallet to make a gate.

Step 4. Add a latch to the other side so you can keep it shut. Add compost and turn often!

HOMEMADE BUG, WEED KILLER, AND ORGANIC PLANT SPRAYS

Forget about using deadly Roundup or chemical treatments on your plants (if it kills every type of bug and weed, imagine what it does to people). It defeats the purpose of growing vegetables if you are going to poison your food.

Everything you need to treat your plants can be found in your kitchen. These are effective, people safe, and environmentally friendly.

Natural Weed Killer

Get:

- Tea kettle
- Water

Boil water.

Pour hot water over weeds.

Done! It will kill them within hours.



Vinegar Weed Spray

- 5% of vinegar or higher
- Spray bottle

Spray the vinegar on leaf foliage on a sunny day and it'll zap those weeds.

Natural Bug Spray

Good for warding off cucumber, potato beetles, squash bugs, hornworms, rare loopers, aphids, and flea beetles.

- 5 garlic cloves
- 2 Tbsp hot pepper flakes or one habanero pepper
- 2 cups of water
- 1 onion
- 1 tsp organic liquid soap

Blend concoction and let it sit a day or overnight in a glass jar. Using gloves, strain with a coffee filter. Add 1/2 cup of concentration into a spray bottle and fill the rest of the bottle with water. Apply to any type of plants where bad bugs are attacking. Be careful to not get this one in your eyes!



Just be careful—these methods are not discerning, and they will kill your favorite plants and good bugs too.

ANTIFUNGAL SPRAYS

Apple Cider Vinegar Fungicide

Good for getting rid of leaf spot, mildew, and scab. If you have pepper plants with leaves curling inward, this will help you out.

Mix:

3 Tbsp of cider vinegar (5% acidity)

1 gallon water

Spray in the morning on infested plants.



* Baking Soda Spray



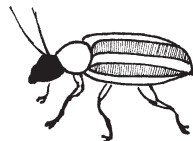
Use for anthracnose, early tomato blight, leaf blight and spots, powdery mildew, and as a general fungicide.

Mix:

1 Tbsp baking soda

2 1/2 Tbsp vegetable oil

1 gallon of water



Shake this up and then add 1/2 tsp of organic castille soap (Like Doc Bronner's) and spray at the plant's base and on all sides of leaves and stems. Repeat every 5 to 7 days as needed.

*Source: Cornell University

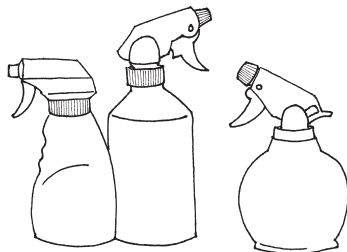


MAKE COMPOST TEA

Give your plants a jolt of superfoods by making this concentrated compost tea. Good for improved disease/pest-resistance, and to have a stronger garden overall.

It's like brewing a big mug of compost coffee!

Step 1. Get a 5 gallon bucket and a small bag of compost.



Step 2. Mix together.

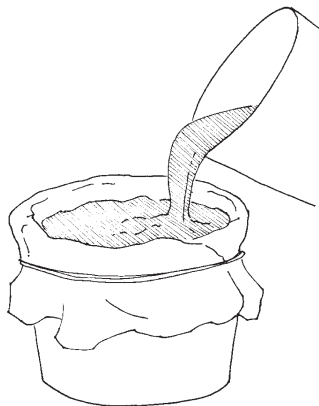
Step 3. Add an aquarium pump to get some aeration.

Step 4. Let it bubble for 24 hours.

Step 5. Strain through a large cloth and throw solids into the garden.

Use the liquid compost tea on plants and they will love you for it!

No aquarium pump? It'll just take a little longer—stir the bucket every day to give it some anaerobic activity, and it'll be ready in a week. Spray on plants or water directly at the roots.



BUILD A STRAW BALE RAISED BED/COLD FRAME

Put your shovel down—this straw bale raised bed makes an instant, affordable, three season garden that you can put anywhere there is sun. And, it costs less than \$20 to make (which translates to about 5 minutes shopping in the organic produce aisle.)

Get:

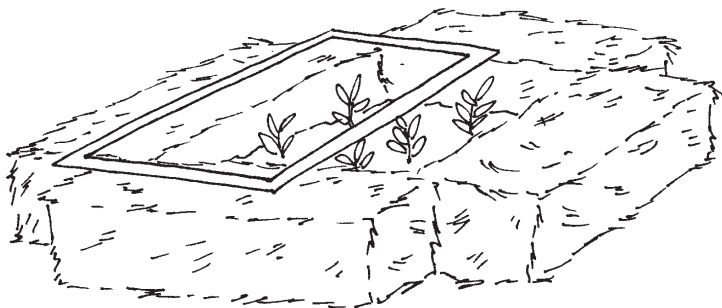
- 4 straw bales
- Organic soil (a mix of topsoil or compost is good)
- Old windows (make sure they don't have paint on them, you don't want that to chip off into your coldframe!)

Make:

Arrange four strawbales in a square. Add soil or compost inside square to cover and establish a nice raised bed. Then, when it gets cold (in the 40s), kick your straw bales into transformer mode by adding windows and making it a coldframe.

The straw insulates the coldframe so your late summer planted greens and seeds will kick it out all winter in warmer climates, or, go dormant and come back to life in early March. Either way, you'll have greens long after everyone else has put their shovels away for the season.

Then, when it warms up, remove the windows and use as a raise bed. Repeat again in fall. Save tons of dough.

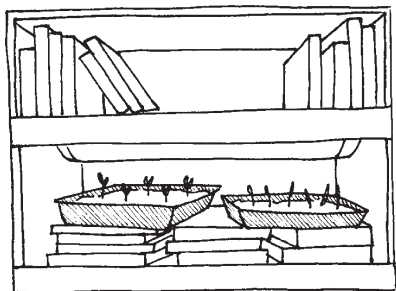
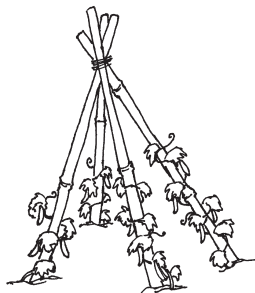


MAKE A SEED STARTING STATION OUT OF AN OLD BOOKCASE OR DRESSER

Starting your own seeds can save a ton of money. But, they'll need some good light. Hack together this space-saving diy seed starting station for as little as 15 dollars.

Get:

- An old bookshelf or dresser (remove the drawers of the dresser)
- A shop light fluorescent fixture that fits inside the bookshelf or dresser shelves



Make:

Screw the fluorescent shoplight right into the underside of the top shelf or dresser compartment.

Seedlings need to be close to the light, so add books underneath to get them about 4 inches away. Take books away as seedlings grow.

HOW TO MAKE DRIP IRRIGATION OUT OF AN OLD HOSE

This is a great way to repurpose an old hose so you can custom water your garden by just hitting a switch. Plus, directly watering a plant at the roots will save a ton of water, and prevent fungal diseases spread by soggy, damp leaves.

Get:

- And old hose, or multiple old hoses to water your garden
- A drill
- Small drill bit
- End cap
- Marker

Make:

Step 1.

Position the hose at ground level where you want your plants watered.

Step 2.

Mark an x on the base of the hose where plants are so you can drill a hole to water them.

Step 3.

Drill a hole at the x's—be sure the hole is big enough for water to flow, but not so big that you get a huge puddle. Keep holes even sizes.

Step 4.

Attach an end cap at the end of the hose.

Step 5.

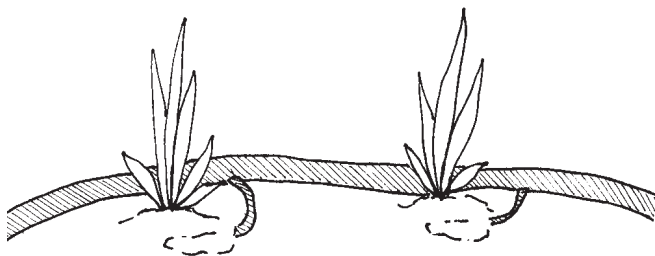
Attach the other end of the hose to a water source.

Step 6.

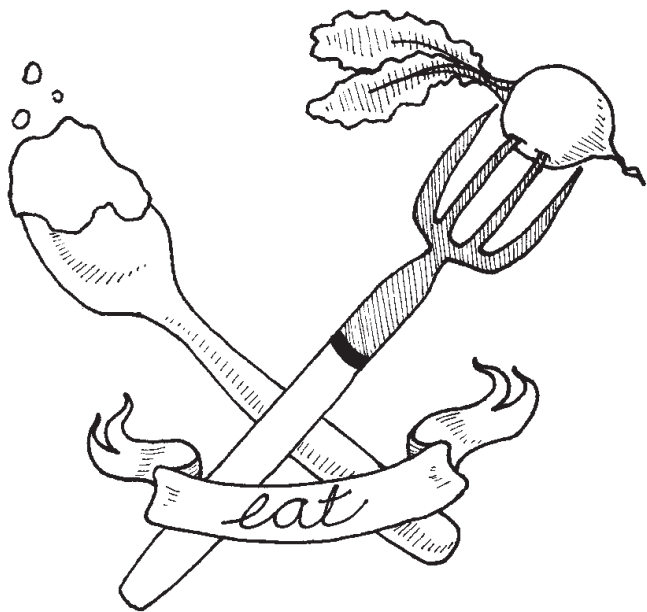
Mulch the top of the hose with straw to keep moisture in.

Step 7.

Give it a go. Tweak as needed. Make sure not to leave it on, you don't want to drown your plants!



Chapter 7: Eat



RECIPES INDEX

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- Stirfy
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- Kraut
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Carrots

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Cauliflower

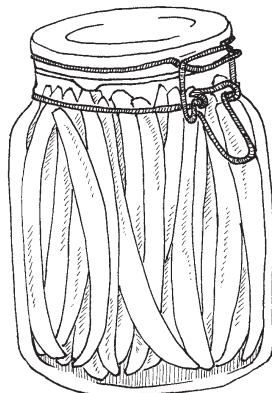
- Cauliflowermash

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- Zucchini Pasta

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- Easy, Amazing 20 Minute Tomato Sauce
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- Jeri's Tomato Pesto

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- Pumpkin Gnocci
- Spaghetti Squash Bowls

EAT

Unlike supermarket produce, most likely grown in some far away country and trucked thousands of miles to get to your cart, organic produce that you grow yourself will taste better, be more nutritious, and save you money. Don't forget to eat it! Here are some flexible recipes for ways to use up whatever you have growing, and some recipes to use up a lot of vegetables that have become staples in our house.

Switching out ingredients

Make all these recipes your own (e.g., to make things vegan, swap butter for Earthbound margarine or olive oil). Hate parsley? Try cilantro. Cooking is about having fun—and since you already have the best ingredients on earth, your food is going to be totally flavorful.

MIXED VEG

These recipes are great to use up a ton of vegetables, and are flexible to whatever you have in the fridge or fresh from the garden. Plus, the chili, curry, and soup recipes store well, so make a huge vat and freeze the extra in quart size, large mouth glass Mason jars. Then, the next time you have a late day at work or don't feel like making dinner, thaw one of these suckers and you're set. It's a lifesaver to have amazing, fresh, healthy food ready to go in your freezer.

How to defrost a Mason jar quickly

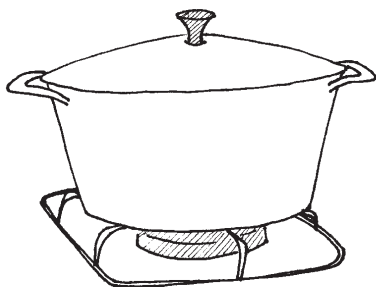
Take your frozen Mason jar and put it in a large bowl of warmish water (don't make it too hot or the jar may crack). Make sure most of the jar is submerged. Soak it for about 30 minutes to an hour and then it should be defrosted enough to empty into your pan. Heat up soup/chili/curry sauce on the stovetop until hot, and you're good to go.

SOUPS

Italian Soup

Ingredients:

- Olive oil
- Stock: onions, garlic, chopped tomatoes, water
- Vegetables (use any or all): zucchini, cauliflower, greens, peppers, cabbage, asparagus, mushrooms, carrots, spinach,



etc.

- Protein: beans, lentils, or chickpeas
- Spices: fennel, basil, parsley, thyme, oregano, salt and pepper to taste

In a large soup pot, add stock ingredients, cover with water, and cook until it starts to boil. Then add rest of the ingredients, and lower to a simmer for ten minutes. Taste and adjust spices accordingly. Get crusty bread ready!

Adding pasta

Want to make a soup with pasta? Cook the pasta in a separate pot first, then add it to your soup in the last step.

Cream of _____ Soup

Potatoes make this simple creamy broth delicious and dairy-free. Customize it by adding whatever main veggie you want to fill in the blank.



JERRI BLANK LOVES IT!

Ingredients:

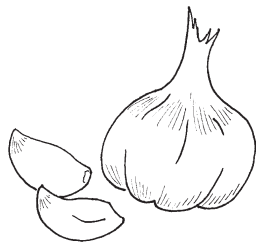
- 2 Tbsp olive oil
- Stock: onions, celery, garlic, 4 to 5 potatoes, water, a couple of vegetarian bouillon cubes
- Vegetables (use any one): zucchini, cauliflower, spinach, peppers, broccoli, asparagus, or mushrooms
- Spices: cilantro, parsley, or thyme, salt and pepper to taste

Heat up olive oil in your soup pot. Add onions, celery, and garlic for 5 minutes. Add potatoes and sauté for two more minutes. Then, add water to cover the potatoes and simmer for 15 minutes until they are soft. Add your vegetable and let simmer 5 minutes more. Remove half of the soup and blend it up. Pour back in to the pot. (Or, get out the immersion blender and just blend it partially, whatever is easier). Add spices to taste.

Optional: Add a bit of soy/nut/cow's milk/cashew cream, butter, or Earthbound margarine if you want it creamier.

Garlic Soup

Great for fighting a cold, or if you just need a comforting, warm soup. This one is a medicinal powerhouse, but tastes amazing.



Ingredients:

- 2 Tbsp olive oil
- Stock: onions, celery, carrots, head of garlic, ginger, water
- Vegetables (use any or all): cabbage, sweet potatoes, spinach, collards, kale, zucchini
- Protein: red lentils
- Spices: curry, fresh cilantro, salt and pepper to taste

Heat up olive oil in a soup pot and sauté onions, carrots, sweet potatoes (if using), and celery until softened. Add garlic and simmer for another minute. Add water to cover, add lentils and heat until it boils. Lower heat, add greens and spices and simmer until it's all softened. Add fresh cilantro if you want.

Curry

Curry is a great dish to use up whatever is in the fridge, and makes a great cold-weather meal that tastes even better the next day. Just add some Indian pickle and naan bread or rice and you are set. Look for curry paste at your local Indian grocery, or in the ethnic food aisle of your grocery store. Patak's is the best off the shelf brand if you are in a rush.

Ingredients:

- Base: onions, 6 chopped tomatoes, (or 28 oz. can), equal amounts of minced garlic and ginger, olive oil or ghee if you have it
- Vegetables (any or all): sweet potatoes, winter squash, cauliflower, peppers, carrots, broccoli, spinach, potatoes, green beans, zucchini, etc.
- Curry spices: 2 Tbsp each of cumin and coriander powder, 1 Tbsp cumin seeds, 1 tsp turmeric, pepper flakes to taste
(Or, a few tablespoons of Patak's curry paste)
- Fresh cilantro to garnish

Heat up oil in a pot, and cook onions until softened. Add garlic, ginger, and cumin seeds for another minute. Then, add rest of spices (or curry paste) and let cook for a few more minutes. Add tomatoes, vegetables, and water to cover and let it simmer until everything is softened, about 20 minutes. Add more spices if needed, and throw in chopped cilantro. Garnish with yogurt, naan, rice, Indian pickle and/or chutney. Yum.

Ramp up the protein by adding garbanzo beans.

Chili

A great way to use a bunch of vegetables—and it freezes well.

Ingredients:

- Olive oil
- Base: onions, 6 chopped tomatoes (or 28 oz. can), garlic
- Vegetables (any or all): peppers, mushrooms, zucchini, carrots, kale, broccoli, spinach, green beans
- Beans
- Chili Spices: chili powder, cumin, hot pepper flakes to taste
- Flavors: espresso/finely ground coffee, dark chocolate, chipotle peppers

Heat up oil in a large pot. Add onions until soft, then garlic for another minute. Then, add tomatoes, vegetables, beans, and spices you'd like. Add water to cover and let simmer until all is soft, about 20 minutes.

Vegetable Stirfry

These simple stirfry recipes can be made in 30 minutes or less.

Base Stirfy Ingredients:

- Sesame oil
- Garlic
- Ginger
- Vegetables: onions, peppers, eggplant, carrots, radishes, zucchini, snow peas, kale, mustard greens, spinach, cabbage, mushrooms

Chop all of your vegetables and whisk up your stir-fry sauce. Heat up sesame oil in a skillet/pan/wok and add garlic and ginger for a minute, then throw in vegetables. Add sauce and sauté until softened.

Stir Fry Sauces

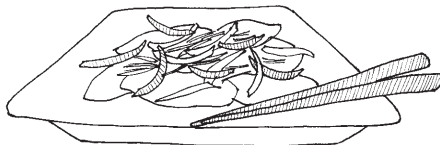
(Just whisk, whisk, whisk...)

Sweet and Sour

1/4 cup of water/chicken/or vegetable broth
2 Tbsp soy sauce
2 Tbsp cider, balsamic or rice wine vinegar
1 Tbsp brown sugar
1/2 tsp hot red pepper flakes

Chili-Lime

3 Tbsp sugar
3 Tbsp reduced sodium tamari (or soy sauce)
2 Tbsp fresh lime juice
2 Tbsp rooster red chili sauce
Garlic
Salt to taste



Ginger-Miso

3 Tbsp olive oil
Equal amounts of chopped garlic and ginger
2 Tbsp of yellow miso
1 Tbsp of soy sauce
1 Tbsp of rice vinegar
1/2 tsp sugar
Hot pepper flakes (to taste)

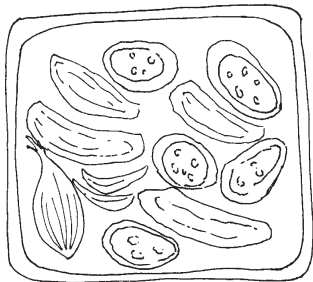
Roasted Vegetables

Homegrown vegetables don't need a whole lot of spices or stuff added to them—they taste that good. You'll be blown away by how amazing these simple roasted vegetables taste with just olive oil, salt and pepper. These make a great side dish.

Ingredients:

- Vegetables: any type of root vegetables—potatoes, turnips, beets, asparagus, cauliflower
- Olive oil
- Salt and pepper

Heat up oven to 375 degrees. Toss veggies in olive oil, and put on a cookie sheet. Add salt and pepper to taste. Roast for 15 minutes and then flip them over with a spatula. Roast for another 15 minutes or so until they are nicely browned.



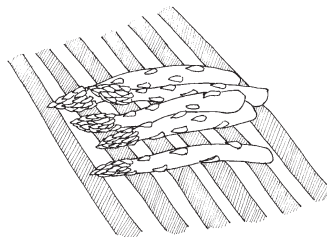
Variation: Though you don't need any spices, a bit of curry powder on potatoes or cauliflower adds a nice touch.

ASPARAGUS Grilled Asparagus

Ingredients:

- 1 pound fresh asparagus
- 1 Tbsp olive oil
- Salt and pepper to taste

Preheat grill. Lightly coat the asparagus spears with olive oil and season with salt and pepper to taste. Grill over high heat for 2 to 3 minutes, and serve right away.



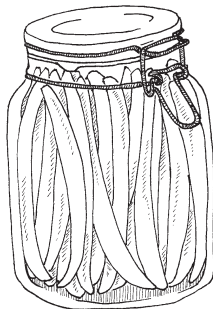
BEANS

Crunchy Green Bean Pickles

These pickles stay totally crunchy, even after you can them. They also make a good match for a martini...

Ingredients:

- 2 1/2 pounds fresh green beans
- 2 1/2 cups distilled white vinegar
- 2 cups water
- 1/4 cup salt
- 1 clove garlic, peeled
- 1 bunch fresh dill weed
- 3/4 tsp red pepper flakes (optional)



Canning Recipe:

Sterilize 6 (1/2 pint) jars with rings and lids and keep hot. Trim green beans to 1/4 inch shorter than your jars. In a large saucepan, stir vinegar, water, and salt. Add garlic and bring to a rolling boil over high heat. In each jar, place 1 sprig of dill and 1/8 teaspoon of red pepper flakes. Pack green beans so they are standing on their ends.

Ladle the boiling brine into the jars, filling to within 1/4 inch of the tops. Discard garlic. Seal jars with lids and rings. Place in a hot water bath so they are covered by 1 inch of water. Simmer but do not boil for 10 minutes to process. Cool to room temperature. Test jars for a good seal by pressing on the center of the lid. It should not move. Refrigerate any jars that do not seal properly. Let pickles sit for two to three weeks before eating.

Variation: Wasabi Green Bean Pickles

Omg, these are good. Swap out the dill for 1 Tbsp of wasabi powder, and a few pieces of ginger for an added kick. These go great with a bloody mary.



BEETS

Main Course Beets

Have a heart, eat a beet instead as the main course. Thanks to Dave Keller for this one!

Ingredients:

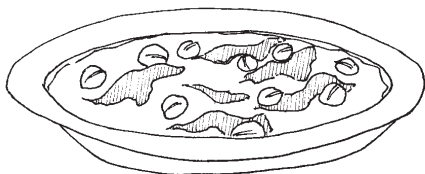
- Beets
- Tinfoil
- Olive oil
- Salt and pepper to taste

Heat oven to 375 degrees. Skin beets, brush with a little bit of olive oil, and wrap completely in tinfoil. Bake for 40 minutes, until a knife goes through the beet. Serve with rice and greens.

Roasted Beet Salad

Ingredients:

- 10 medium sized red beets (washed)
- Dash of salt
- Sherry vinegar
- Some olive oil
- Fresh cracked pepper
- Some sour cream
- Fresh arugula (if you got it)



Place in covered roasting pan with 1/2 inch water and season with salt. Roast at 400 degrees for 1 hour or until knife glides through beets smoothly without resistance.

Remove from oven and let cool. With a pairing knife or towel you don't mind staining remove the skin from the beets. Once all beets are clean, cut the beets in quarters then slice. In a separate bowl add the beets, splash some Spanish sherry vinegar, olive oil, salt and fresh cracked pepper to taste.

Serve with sour cream (optional) and some fresh arugula.

CABBAGE

Raw cabbage is pretty awesome for you (Google it, you'll be amazed). Here are my two favorite recipes for getting your cabbage on.

Kraut

This is just like the super-expensive raw sauerkraut you see at the healthfood store. Oh, and it goes perfect with just about everything—sandwiches, picnics, or right out of the jar.

Ingredients:

- Head of cabbage
- 1 1/2 tablespoons kosher salt

Plus:

- Large 1/2 gallon Mason jar
- Smaller pint Mason jar that fits inside large Mason jar
- Lid for larger Mason jar

Wash cabbage, remove and save outer leaves, and slice thin or put in food processor to speed things up. Put in a bowl and add salt. Crunch it up with your hands to release the natural juices of the cabbage.



Keep crunching it for about 5 minutes or so. (Don't worry, this makes a lot and is so worth it).

Add the cabbage to the large sterilized Mason jar and push it down with a spoon. Keep pushing until liquid covers the cabbage completely. You don't want air to hit the kraut.

Add a large cabbage leaf to the top to seal it. Put smaller Mason jar inside large jar and push it down. Put a paper towel or piece of fabric over the whole thing and seal with your large Mason jar lid.

Let sit on your countertop for 3 to 4 days and make sure it stays submerged. (Air spoils the kraut). Taste on day 5 to see if it's done enough for you. It should be crunchy/salty and slightly tangy. If so, add to smaller sterilized Mason jars and put in the fridge.

Lasts up to 6 months and gets better the longer you wait.

Cabbage krauts faster when it's hot (above 72 degrees) so it will be done faster in the summer, and take longer in the winter.

Asian Slaw

Ingredients:

- Head of cabbage
- Carrots
- Bell peppers
- 1 Tbsp fresh ginger
- Radishes
- Cilantro
- 1/2 cup rice vinegar
- 2 tsp sesame oil
- 1 tsp of sugar (maple or agave work well too)
- Hot pepper (optional)

Chop chop everything (or food process it all) so it's matchstick size. In a separate bowl, whisk up rice vinegar, sugar, sesame oil, and hot pepper to taste. Pour over slaw and add chopped cilantro.

Keeps in the fridge for 5 days or so.

CARROTS

Carrot Pickles

Ingredients:

- 1/2 pound large carrots, peeled and cut longways.
- 1 tsp kosher or sea salt
- 1 cup unseasoned rice vinegar
- 3 Tbsp of sugar
- 1 cup water

Wash and cut carrots. Pat dry. In a pot, mix vinegar, salt, sugar, and water until the sugar dissolves, and heat up on the stove. While that's going, pack your carrots into sterilized Mason jars. Once the vinegar is boiling, pour it into the Mason jars to cover the carrots and seal. Let cool, then put in the fridge. These need to be refrigerated but they will stay crunchy, and are good for up to a month. Try making this with different colored carrots to really be a show off.

CAULIFLOWER

Cauliflowermash

Tastes just like potatoes! (Actually, it does.)

Ingredients:

- 1 head of cauliflower
- 1/4 cup of milk (can be hemp, nut or soymilk instead)
- 2 cloves of garlic
- Salt and pepper to taste

Cut up cauliflower and steam for 10 minutes. Once it's soft, put it in a food processor with milk and garlic and go for broke.



CUCUMBERS

Chilled Cucumber Salad

Ingredients:

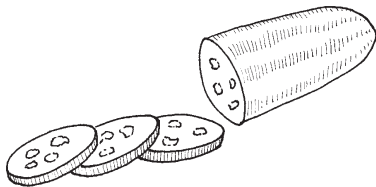
- 3 medium size cucumbers
- 2 cloves of fresh garlic
- 1 shallot
- Fresh cilantro as a garnish
- 3 Tbsp of japanese rice wine vinegar (no RW vinegar on hand? Just mix 3 Tbsp of white vinegar with 6 tablespoons sugar and mix until sugar dissolves)
- 1 Tbsp soy sauce
- 1 tsp sesame oil

Slice cucumbers. Finely chop the garlic and shallot and mix it in with cucumbers. Add the rest of the ingredients. Toss several times to make sure all ingredients are mixed well. Let sit in refrigerator for a few hours before serving. Add slightly chopped cilantro as a garnish on top. If you like it spicy, add in some Sriracha hot sauce. One teaspoon to start and then add more if desired.

EGGPLANT

Baba Ganouj

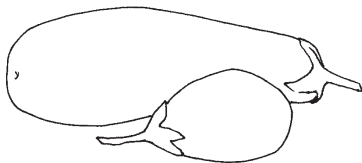
I could live on this. The smoked version is amazing too. This gets smooth in a high speed blender so rock it if you got it. And, it freezes well, so make a lot!



Ingredients:

- 2 large eggplants
- 1/4 cup tahini
- 4 garlic cloves
- 1/4 cup fresh lemon juice
- Salt and pepper to taste
- Olive oil to brush eggplant
- Cumin

Heat oven to 375 degrees, cut eggplant in half, and prick the other side with a fork a few times. Brush eggplants with oil and cook until soft (about 20 minutes). With a spoon, scoop eggplant, sans skin, into a blender and add tahini, garlic, lemon juice, and spices. Blend. Cool. Enjoy. Now.



GARLIC

Roasted Garlic Spread

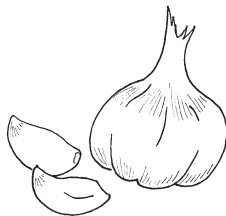
This fancy pants garlic spread is tasty and super healthy.

Ingredients:

- Head of garlic
- Olive oil
- Tinfoil

Heat up oven to 400 degrees. Take an entire head of garlic and cut the top off so you can just see the pointy heads. Drizzle with olive oil and wrap in foil. Bake for 20 minutes until soft.

Arrange on a plate with bread. Using a fork, pull out the softened cloves and spread on bread.



Quick Garlic Bread

Super quick way to give any piece of bread some garlicky goodness. It melts the garlic into the bread, like butter.

Ingredients:

- Peeled whole cloves of garlic
- Bread

Toast your bread. When bread is still warm, take garlic and scrape onto the bread, rotating so you use all sides.

KALE Kale Chips

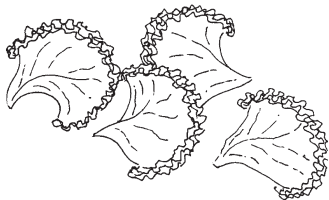
These are like get-out-of-jail-free potato chips, made of kale!

They have some serious crunch, are highly addictive, can be seasoned with whatever you want, and are usually expensive at the health food store. Here's how to make your own on the cheap.

Ingredients:

- Kale
- Olive oil
- Salt

Preheat oven to 350 degrees. Get a bunch of curly kale, wash, and then dry it with a salad spinner. Chop it up into chip size pieces, and mix in a bowl with olive oil and seasonings (don't over season, they do condense the flavor when they cook.). Arrange on a cookie sheet and cook for 10 to 15 minutes until the edges are browned, but not burnt.



Mix it up:

Add these different spices to make these kale chips your own:

- Cajun
- Nutritional yeast (to make them cheesy)
- Tamari

- Vinegar and salt
- Tahini, apple cider vinegar, lemon, and dash of soy sauce (tastes like bacon, kinda)

You can also put these in the dehydrator at 115 degrees for 4 hours to make raw kale chips.

Kale Tacos

Ingredients:

- Kale leaf
- Taco filling (beans, rice, guac, etc.)

Make a taco filling. Get a large kale leaf. Wrap it up and make a taco. Yum.

LETTUCE

3-simple salad dressings

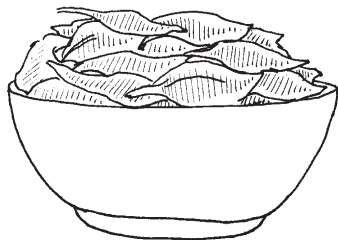
Whisk these up in a bowl for a class act salad. They also will store in the fridge for up to a week if you have some left.

Lemon-Garlic Vinaigrette

- 1 cup extra virgin olive oil
- 4 cloves of garlic, pressed
- 2/3 cup lemon juice
- 2 teaspoons sugar
- 1/2 finely chopped green onion
- 1 teaspoon salt
- 1 teaspoon pepper

Balsamic Vinaigrette

- 3/4 cup olive oil
 - 1/4 balsamic vinegar
 - 2 cloves of pressed garlic
 - 1/2 Dijon mustard
- Spices: thyme, rosemary, and pepper work well
- 1 Tbsp sugar/honey/agave/or maple syrup



Miso Garlic Vinaigrette

- 1/4 cup white miso
- 3 Tbsp rice wine vinegar
- 2 cloves of garlic, pressed
- 1 Tbsp finely grated fresh ginger
- 1 1/2 tsps sugar/agave/honey or maple syrup
- 3 tsp plain (not toasted) sesame oil
- 1 Tbsp water

MELONS

Melon Yum Yum

Grab a spoon. Grab a melon. Cut melon in half. Eat. Yum.

Quick Blender Melon Sorbet

Who needs a fancy ice cream maker? I love that all you have to do is throw this in a blender for instant dessert! Stays good in the freezer for up to two weeks.

Ingredients:

- 1 melon
- Fine sugar
- Water

Remove seeds, scoop out melon, and cut into 1 inch squares or balls, and freeze. Once frozen get out blender, and add melon. Blend, adding sugar and a little bit of water if it needs help mixing up. Serve in a fancy glass, and call it a day.

Variations:

Add fresh mint leaves or lime juice to make it even more refreshing. Or, try basil leaves, or fresh strawberries. It's all *good*.



PEPPERS

Orange Crush Habanero Sauce

Using a blender is a great way to make short work of habaneros without chopping or burning your hands. But, still make sure to wear gloves—habaneros are no joke.

Ingredients:

- 20 whole habaneros (fresh or frozen) de-stemmed
- 1 cup apple cider vinegar
- 5 carrots, chopped
- 1 onion chopped
- 4 cloves of garlic
- 1 tsp olive oil
- Water to cover peppers
- Smoked paprika
- Salt and pepper
- Cumin
- 1 lime



Sauté carrot and onion with olive oil. Once the onions are translucent, add a cup of water and then add your peppers. Add more water to just cover the peppers and let simmer for 5 minutes.

Once it's all softened, transfer (carefully!) to a blender (a Blendtec or Vitamix works great) and blend blend blend.

Then, move back to the stovetop and add apple cider vinegar and lime. Simmer until it thickens (about 10 more minutes.)

Put into hot sauce bottles and store in the fridge for up to a month, or freeze extra sauce in Mason jars. Then, get the water ready, this stuff is hot!

POTATOES

Beltzville Roasted Potatoes

Named after David Beltz of Beltzville, PA (a.k.a. trellis master of the Grow Indie Test Garden).

Ingredients:

- Potatoes
- A bunch of garlic
- Salt and Pepper
- Olive oil

Heat oven to 375 degrees, or get the grill going. Divide garlic into thirds and prepare the garlic 3 ways—mashed, rough chop, and course chop. Add extra virgin olive oil and cook for 1 minute. Then, add potatoes and mix it all up before adding salt and pepper. Check and turn potatoes every ten minutes until they are soft.

Variations

Home fries: Cut smaller

French Fries: Cut into French fry size, season with salt and olive oil.

Curry Fries: Add a few Tbsp of curry powder, turmeric, cumin and hot pepper.

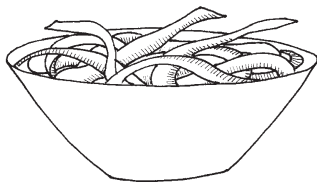
SUMMER SQUASH

Zucchini Pasta

This super quick zucchini pasta is perfect for hot summer nights when you don't feel like cooking anything. You can throw a lot of labels on this dish (gluten-free, no fat, no carb, raw) but I just call it good. The zucchini takes on whatever spice/sauce you mix with it, and really does turn out like al dente pasta.

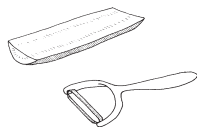
You'll need;

- Zucchini
- A potato peeler
- Salt and pepper to taste



Using a potato peeler, grate zucchini into fettuccini-like strips. Add your favorite sauce, pesto, mushrooms or just olive oil and fresh cherry tomatoes.

Variation: If you want to be all fancy, you can buy a zucchini spiralizer that makes perfect looking rotini pasta, or serrated vegetable peelers for a finer noodle. But a potato peeler works just fine at my house.



Steph's Zucchini Johnnie Cakes!

Every time my friend Stephanie brings these to a party, they are gone in like 5 minutes, no lie. They are that good.

Ingredients:

- 2 medium zucchini (about 1 pound)
- 2 Tbsp grated chopped onion
- 3 brown eggs, lightly beaten
- 5 Tbsp all-purpose flour
- 2 Tbsp corn meal
- Sea salt (to taste)
- 1/2 tsp freshly ground black pepper
- Sprinkle of paprika
- Butter and/or vegetable oil

Grate the zucchini into a bowl using the large grating side of a box grater. Immediately stir in the onion and eggs. Stir in 4 tablespoons of the flour, 1 tablespoon of the corn meal, salt, and pepper. If the batter gets too thin from the liquid in the zucchini, add the remaining 2 tablespoons of flour and corn meal. This is a wetter batter than regular pancakes.

Heat a large (10 to 12-inch) cast iron skillet over medium heat and melt 1/2 tablespoon butter and 1/2 tablespoon oil together in the pan. When the butter is hot but not smoking, lower the heat to medium-low and drop heaping spoonful of batter into the pan. Flatten each dollop so the middle gets done evenly with the edges. Sprinkle both sides with paprika. Cook the pancakes about 2-3 minutes on each side, until browned and the edges are crispy. Set aside to cool, and continue to add butter/oil to the pan and fry the pancakes until all the batter is used. Can be served warm or cool (I like them cool) and a dollop of sour cream slathered on top tastes divine!

Variation: Finely chopped bell peppers (in season the same time as zukes) are good to throw into the mix too.

TOMATOES

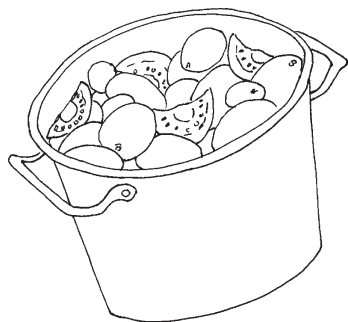
Easy, Amazing 20 Minute Tomato Sauce

I'm always amazed at the simplicity of this recipe, and that it can be on the table in a quick 20. Cooking or roasting your tomatoes this way really intensifies their flavor, making it a velvety rich sauce that's packed with good stuff.

It's also a great way to use all those cherry tomatoes. No need to skin and seed—an immersion blender will make short work of them.

Ingredients:

- A shoebox worth of homegrown tomatoes
- Olive oil
- Garlic
- Onion
- Salt
- Pepper
- Basil
- Lemon juice (if canning)
- Hot pepper (optional)



In a large pot on high heat, add a pinch of salt, let it warm up, then add the olive oil. Once fully heated, add onions and garlic until wilted. Then, add all of the tomatoes at once. Put on the lid and do something else for 20 minutes while it cooks down.

Once it's boiling and the tomatoes are soft, use an immersion blender to turn this into sauce. Cook down longer if you want a thicker sauce, or serve right away. This sauce is a great base. If you want to make it a puttanesca, add olives and capers. If you want to make it spicy, add a habanero. It's all up to you.

To can this sauce: Sterilize canning jars and squeeze half a lemon's juice into them. Add sauce, and boil water bath for 45 minutes. Try not to eat it until it's cold outside because it will be so good then!

Puttanesca Sauce

So what if puttanesca translates to hooker's sauce in Italian—this seductive sauce is all class. And quick to make (the ladies whipped this up in between “client meetings”).

Ingredients:

- 10 large tomatoes, cored and chopped
- 1 onion, chopped
- 4 cloves garlic sliced thin (like in that *Goodfellas* prison scene)
- 1/3 cup pitted Kalamata olives
- 2 Tbsp capers
- 1/8 tsp red pepper flakes
- Two pinches fresh chopped herbs (parsley, basil, oregano, thyme)
- Dash of dry red wine
- Dash of balsamic vinegar

Sauté onion in olive oil until softened, add garlic for a minute, then throw in tomatoes, olives, and pepper flakes. Bring to a simmer. Add herbs, capers, and wine and balsamic to taste. Serve with pasta. Freezes well if you want to make extra.

Jeri's Tomato Pesto

This is a great way to store extra tomatoes, and so tasty on bread with fresh basil.

Ingredients:

- A bunch of tomatoes, sliced very thin
- 2 cloves of garlic (more or less what ever you like)
- 1/2 cup of walnuts (depends how nutty you like it)
- 1 1/2 cups of olive oil

Dehydrate your tomatoes—you can use a dehydrator or put them on a baking sheet in your oven at a very low setting. In a blender, mix up your garlic, olive oil, and walnuts till liquefied, then add the dehydrated tomatoes and blend until a thick paste. Store in the fridge or freeze in a Mason jar.

WINTER SQUASH

Pumpkin Gnocchi

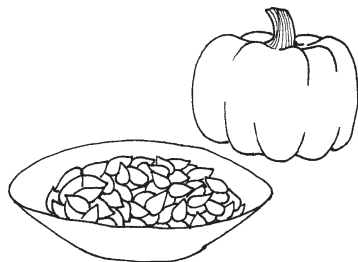
This fancy sounding recipe works with any type of winter squash or even sweet potato, can be made quickly, and only takes 5 minutes to cook! Make a bunch and freeze half right before cooking by putting the gnocchis themselves on a tray in your freezer (so they don't stick together) then put in glass containers for later.

Ingredients:

- 2 cups of pumpkin puree
- 1 egg yolk (or egg substitute if vegan)
- 1 1/4 cup flour
- 1 tsp salt
- 2 Tbsp butter

Mix it all together, then, roll out, and cut into strips. Cut strips into squares and indent each with a fork. Boil water and cook for 5 minutes until they are floating on top. Drain, and use with what ever sauce you like.

Making the Most of Pumpkin/Squash Seeds



If you grew your own heirloom squash or pumpkin, save a few seeds for next year by washing them well, and drying them out on a plate. Then, sprinkle the rest of the seeds with olive oil, salt, and pepper and roast in the oven until crunchy (about 15 minutes, and flip them over a few times). Or, feed your extra seeds to any nearby chickens—they love em! Or, if it's that kinda day where extra seeds are stressing you out just put them in the compost pile. Seeds are pretty astounding things you know?

Spaghetti Squash Bowls

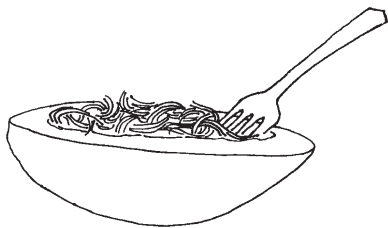
Just like pasta! Well, not exactly, but really it kind of is. Spaghetti squash is also gluten-free, low cal, and carb free—it's amazing that way.

Ingredients:

- Spaghetti squash
- Olive oil
- Salt and Pepper to taste

Heat oven to 400 degrees. Cut squash in half and remove seeds. Bake for 40 minutes or until soft. Take out and break up the squash with a fork to make spaghetti strands and use the shell as a bowl. Add whatever sauce you

want. This dish works well with fresh chopped tomatoes, basil pesto, olives, artichokes, mushrooms, etc. Serve in the squash bowl and don't worry about doing the dishes tonight!



Chapter 8: Store

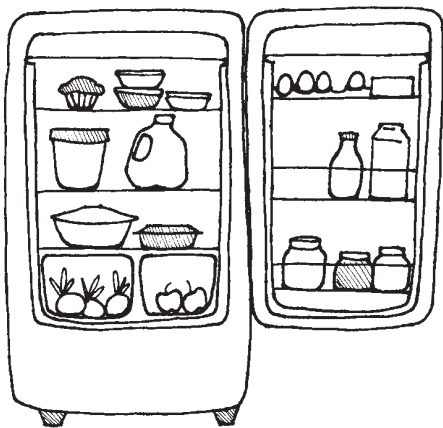


STORE

So, you spent all of this work growing stuff, scored some huge deal on a box of peppers at the farmer's market, and had a neighbor drop off tons of extra zucchini—now what?

It's easy to be overwhelmed at having a lot food in your house, especially if you have a small space or tiny apartment kitchen. Don't worry, there are plenty of options to make short work of that harvest and not waste a thing.

You'll be glad in December when you're cracking open those homemade pickles or making dinner for friends with homegrown heirloom tomato sauce that you can't get anywhere else.



MAKING PRODUCE LAST

Vegetables lose nutrients as time goes on, but, the good news is, unlike most veggies that have traveled thousands of miles, your own produce was just picked, and can last up to three weeks if you store it right.

Vegetable	Best way to store fresh
Asparagus	Put in a cup of water, or wrap in a wet paper towel and place in a bag in the fridge
Beans	Place unwashed beans in plastic bags in the crisper
Beets	Cut off tops and store in sealed plastic bag in the fridge
Broccoli	Store unwashed in a plastic bag in the fridge
Cabbage	Store unwashed in a plastic bag in the fridge
Carrots	Remove tops and store in jars of water in the fridge. Will last for over a week this way if you replace the water every 3 days

Vegetable	Best way to store fresh
Cauliflower	Store unwashed in a Plastic bag in the fridge
Celery	Wash, cut, and Put in an airtight container in the fridge
Corn	Corn is best eaten soon as it's Picked. Freeze it if you can't eat it within a Day or two
Cucumber	Store unwashed in a Plastic bag in the fridge
Eggplant	Paper bag in the fridge
kale	Store unwashed in a Plastic bag in the fridge
Lettuce	Store unwashed in a Plastic bag in the fridge
Melons	Keep at room temp and eat as fresh as possible
Onions	Store in a mesh bag at room temp.
Peas	Eat quickly after Picking, or store in Loose Plastic bags in the fridge
Peppers	Clean and store in containers in the fridge. Can even be washed and chopped before being stored, so they are ready for anything
Potatoes	Store in a ventilated Paper bag away from Light
Radishes	Cut greens and roots off, wash, and store in a bowl of fresh water in the fridge
Spinach	Wash and air Dry, then store in an airtight container in the fridge
Summer Squash	Wash and store in a Plastic bag in the fridge
Tomatoes	Wash and store at room temperature
Winter Squash and Pumpkins	Wipe Clean and store at room temperature

Source: Iowa State University Horticulture Guide

INFUSIONS

Homemade infusions are a great way to use up herbs and make fancy schmancy oils and vinegars. Or, spice up that traditional bloody mary with your own habanero infused vodkas at your next brunch. These also make fantastic presents and are a great way to enjoy the garden all year long. Get on it.

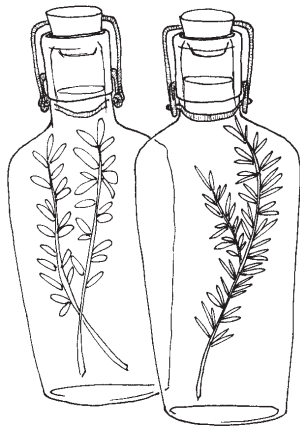
How it works: The vinegar, oil or alcohol draws out the flavor of the herb and infuses it into the liquid, which acts as a preservative. To preserve these for the long haul, sterilize your glass bottles first steaming them in a pot of boiling water for 10 minutes.



Flavored Vinegars

These herbal vinegars are good for salads, marinating, adding to soups, or just adding a little oomph to whatever's on the stove.

For every 2 cups of vinegar, use three to four sprigs of fresh herbs, or 3 tablespoons of dried herbs. Heat up vinegar in a non-aluminum pot and remove just before it starts to boil. Put your fresh herbs in a large glass jar and cover with your hot vinegar. Put a lid on it and let sit in a dark spot for two weeks before straining into smaller bottles. Add a few fresh herbs (just for nice) and label. Store in the fridge after opening.



Flavored Oils

These are also great for making your own cooking oils, and the flavor combos are endless. (Although, don't use garlic for oils, it doesn't keep well.) Just take half a cup of fresh herbs for every 3 cups of oil (olive, sesame, or any light oil will do), put the lid on and place in a sunny window for ten days to help it infuse. Label and use within two months.

Flavored Alcohol

Start by buying some cheap alcohol (the flavor of your infusion will take over, so buying fancy vodka kind of defeats the purpose, but if you want to spend some bucks, go for it. I go mid- to bottom-shelf) Add your herbs, peppers, or whatever you plan on using and place in a dark area to infuse. Shake a few times each day and infuse for two weeks, or to taste. Strain into final glass bottles, and label.

Mix it Up

You can infuse any type of fresh herb with vinegar, oil or alcohol, so have fun experimenting.

Some good infusions include:

- Garlic, Rosemary, and Marjoram
- Savory, Thyme, Oregano,
- Garlic Basil
- Chili peppers

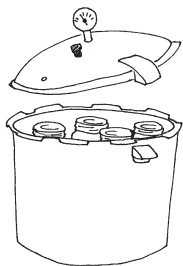
Reused wine or liquor bottles are perfect for infusions, and you can make your own labels and give them out as gifts.



CANNING

Ah, canning, that age-old tradition. Canning is a good way to store (or “put up”) a large amount of food for a long time, without having to refrigerate or freeze it. When you can something, you kill all of the food-spoiling organisms, and create an airtight seal to preserve the food for up to 5 years.

There are two types of canners—pressure canners and water bath canners.



Water bath canning is traditionally used for canning fruits (including tomatoes) and is easier to do than pressure canning (which is typically done for vegetables). There is a lot of debate in the canning world in regards to which way is safer/easier to use, but I water bath tomatoes, pickles, chutnies, jellies, and salsas, and freeze straight up vegetables to keep things simple.

What You Need:

-A canning kit (this includes a large lobster-type pot, a rack for holding your jars, and a jar lifter.)

Or

-A large pot, jars, lids, and twisty ties

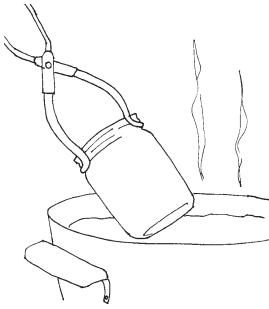
If you don't have a traditional canning set, it's easy to make one. Just get a large soup pot (big enough to hold at least four jars and submerge them). Then, get a few extra Mason jar bands and tie them together and put them on the bottom of your pot. The idea is you do not want the jars to touch the bottom of they pot; they sit on the lids instead, and should be 1/2 inch or more off the bottom.

First, fill your pot a little more than halfway. While that's going, get another pot and fill it a quarter of the way with water, put your canning jars, lids, and bands in the second and pot steam to sterilize.

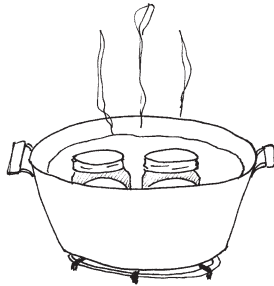
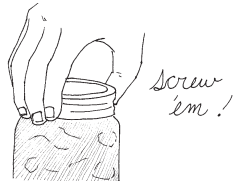
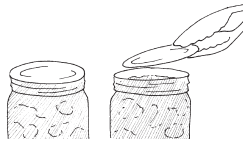
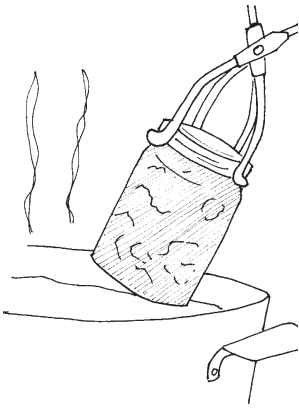
Once steamed, take out and add whatever you want canned.

Put canning jars, with lids and bands, in the large pot of boiling water and process for as long as your recipe calls for. Make sure water covers the jar lids by at least an inch.

Once done, take out and let cool. You'll hear the signature “pop” for a while as the jars seal. Place on the shelf. Anything that didn't seal, eat right away.



YOU CAN CAN



The Dreaded Botch

Botulism is one of those things that you hear about a lot, but no one knows anyone that has got it. For all the hubbub, you'd think it was common, but it's rare—according to the CDC, only about 20 people get it each year in the U.S., and that's because they tried to can low acid vegetables (like asparagus).

Not that that means you should take risks. Botulism spores can survive when you don't process your canned food enough, or you don't have high enough acid content in your food.

Luckily, fruits (including tomatoes) are high in acid, but to be safe, you can add a few tablespoons of lemon juice to each jar. For pickles, no need to worry, because the vinegar raises the acid level.

Adjusting Canning Times for Altitude

1,000 to 3,000 feet above sea level—add 5 minutes

3,000 to 6,000 feet above sea level—add 10 minutes

6,000 to 8,000 feet above sea level—add 15 minutes

PICKLING

In the days before refrigeration, supermarkets, and mass industrialized canning machines, if you wanted to store your harvest, pickling was the way to go. This age old practice dates back to 2030 BC, but don't let that intimidate you—it's fun to make your own pickles.

And I'm not sure if you knew, but there are two types of pickles:

Vinegar Pickling: The first type preserves vegetables in vinegar solution that is then water bath sterilized to keep out bad bacteria (think crunchy sandwich pickles).

Fermentation: The second type of pickling, known as lacto-fermentation, uses salt or whey to encourage the growth of good bacteria (like sauerkraut and kimchi). These are not heated up or pasteurized in any way, they simply let the good bacteria do its stuff.

DIY Pickles

We're not talking about those pasteurized pickles you find lining the deli section at the supermarket that have traveled from who knows where and are filled with Yellow #5 and Blue #1—homemade pickles are much tastier and healthier for you, there won't be any turning back.

Think outside the cucumber!

There are a million different types of pickle variations, and you can pickle anything you grow.

How to Pickle Anything

Works with any vegetable, but great with crunchy ones, like cucumbers, beets, brussel sprouts, green beans, etc.

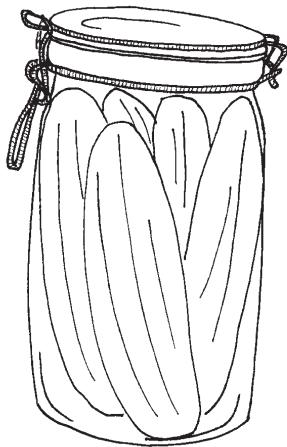
4 lbs any vegetables

2 3/4 cups apple cider vinegar

3 cups water

1/4 cup non-iodized sea salt

3 tablespoons coriander seeds



12 dried chilies (optional)
3 tablespoons cumin seeds
3 tablespoons mustard seeds
12-24 garlic cloves
(Optional: other spices to taste!)
Makes 6 pints

Sterilize jars by boiling them for 10 minutes. Set aside.

Combine vinegar, water and salt and bring to a boil. Put vegetables, and 1 chili pepper, 1 to 2 cloves of garlic, a pinch of cumin, coriander, and mustard seeds into sterilized canning jars.

Pour the vinegar mixture over the vegetables to 1/4" from the top of the jar. Process in hot water bath canner for 10 minutes. Store out of direct sunlight and wait six weeks before opening.

Easy One Step Refrigerator Pickles

Don't have time to drag the canner out? Make pickles in just 10 minutes with this simple refrigerator recipe. They will stay crunchy, and keep in the fridge for up to two months.

6 cups chopped or sliced vegetables (cucumbers, beets, carrots, radishes, etc.)
1 onion, thinly sliced
2 cups white vinegar
1/4 cup sugar
3/4 teaspoon salt
1/2 teaspoon mustard seeds
4 garlic cloves, sliced
Makes 4 pints

Optional spices to add to jars: Dill, habanero/pepper flakes, peppercorns, whatever you like!

Pack vegetables, spices, and garlic cloves in sterilized glasses. Combine vinegar and sugar in a small saucepan, stir well and bring to a boil. Cook 1 minute and pour into jars. Put lids on, let it cool for an hour and keep jars in the fridge. Let cure for 4 days then it's fair game. Yum!

FERMENTING

In today's time pressed and pasteurized obsessed-world, fermenting may be intimidating to some folks, but it's a safe and easy process that's very good for you. It can be as simple as putting chopped vegetables in a Mason jar for a few days, then storing them in a cold area—like the fridge—after they've fermented. And don't freak out about eating foods that are sitting out for a few days—it's a natural process that's good for you. If you've eaten yogurt, had sourdough bread, or drank a beer, you've had fermented foods.

The lactic acid created through the fermentation process (a.k.a. lacto-fermenting) is a natural preservative that creates healthy bacteria that improves digestion. Generations ago, everyone ate fermented foods, and this probiotic bacteria is greatly missing from today's standard American diet.

Fermented foods are filled with probiotics, enzymes, vitamins, minerals and digestive enzymes that work to break down your food, supporting the absorption of vitamins and minerals. If you have a bad Buddha belly, fermented foods can help. Some people say it can help treat depression, autism, Crohn's, etc.

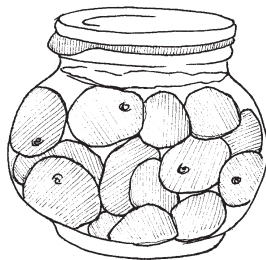
Any vegetable can be fermented, and it's a great way to store and use up extra greens, cabbage, carrots, garlic, radishes, beets, you name it. Here are a few lacto-fermented foods you can make:

Fermented cabbage dishes:

Sauerkraut and kimchi

Condiments: Chutneys, marmalade, fruit butter, preserves, and mustards

Pickled Vegetables: Beets, carrots, garlic, onion, greens, etc.



How to Ferment Any Vegetable

Fermented vegetables have started becoming an artisan craft, and they can be quite expensive. Here's an easy way to make your own for a fraction of the price:

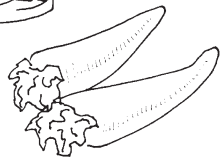
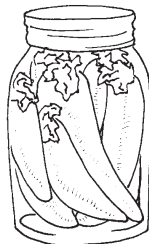
- Chop, cut, grate or food process any raw vegetable.
- Put veggies in a large mixing bowl, add a tablespoon of salt and start kneading and breaking it up with your hands.
- Add another tablespoon if you have a large batch and keep breaking it until the vegetables are really sweating.
- Transfer the vegetables into glass Mason jars.
- Pack it down so the liquid covers the veggies.

- Put on jar lids and bands and let it sit for 3 to 5 days. Move it to the fridge when it's to your liking.

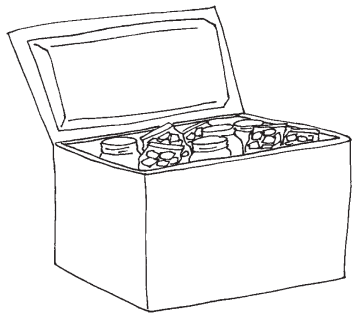
How much salt to add? Try 3 tablespoons of salt per 5 pound of vegetables.

Fermenting foods like it on the warmer side (70 degrees+), so it may take longer to cure if it's cold in your house. In the winter months, you can wrap the container in a towel and place it inside an insulated or thermal chest to give your fermented veggies some extra love. In the summer months, you'll notice they culture faster and may be ready in 2 to 3 days.

Lacto-fermented vegetables improve with maturation and will last several months in the fridge. If you open a jar and see bubbly foam on top, don't freak out, that's normal. Scoop it off.



FREEZING



Freezing food is a lifesaver for the busy gardener, especially in the summer when it's a million degrees out and the last thing you want to do is stand in front of a hot pot of boiling water.

If you don't have a lot of pantry space for canned or dried stuff, a chest freezer is a great option because they hold a lot of food. Most things will keep for six months without losing flavor. You can also freeze cooked tomato sauces, ketchups, hot sauces, chutneys, and pesto very easily instead of canning.

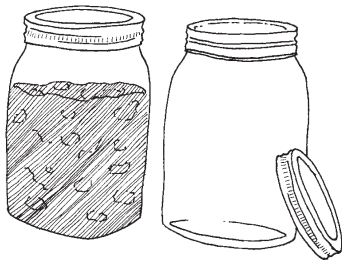
How it works: Freezing stops the enzymes and microorganisms that break down food in their tracks—like cryogenics! When frozen properly, vegetables keep most of their nutrients and vitamins intact, so you have the next healthiest thing to fresh.

Freezing in Mason Jars

You don't have to freeze your food in those chintzy, BPA-filled plastic containers—glass canning jars work great for freezing and storing food. Score some quart-size glass Mason jars at the supermarket, or even at yard sales for cheap. They can be reused over and over again and don't make your food taste like plastic.

When filling your glass jars, don't overfill—leave an inch of headspace because food expands when frozen and you don't want them to break. I've been freezing and refreezing the same jars for years and I haven't broken a jar yet!

I use Mason jars for everything—storing leftovers, bringing an ice coffee to the garden, or as a water bottle. Plastic is filled with tons of nasty chemicals that leach into whatever it holds, and then all those bottles end up in some landfill or ocean. Glass can be reused over and over, it doesn't leach at all, it's 100% recyclable. And it's classy.



How to Freeze

With the exception of whole tomatoes, peppers, and herbs like basil, dill, and parsley, all vegetables should be blanched first to lock in more vitamins, preserve their color, and prevent them from getting a funky texture. No one wants mushy vegetables! Here's how:

First, Prep: It's easiest to gather and prep your crop by vegetable, and process and store each type individually. Start by washing, and cutting your vegetables.

To Blanch: Boil a large pot of water. In a separate bowl, prepare an ice bath by filling the bowl with water and adding ice. When the pot of water is boiling, add your vegetable and boil for the appropriate time. Using a colander or slotted spoon, remove the vegetables from the boiling water and place in the ice bath. Then, remove vegetables from the cold water and add to freezer bags.

Mark your bags or containers well—food can go incognito after it's frozen and you might not recognize it!

To Defrost

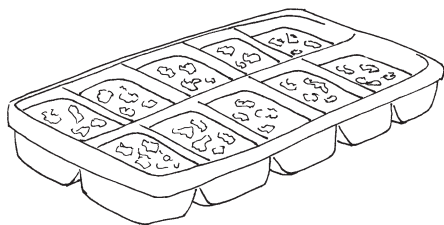
Just take your frozen item out the night or morning before and let it defrost in the fridge. You can also do a quick defrost by putting the jars or bag in another bowl of warm water and it will thaw in about an hour.

Blanching times

Vegetable	How many minutes to Blanch
Asparagus	2 (small), 3 (medium), 4 (Large)
Beans-Pole	3
Beans-Bush	2 (small), 3 (medium), 4 (Large)
Beets	Cook first
Broccoli	3
Brussel sprouts	5 for Large heads, 3 for small
Cabbage or Chinese Cabbage	1 and 1/2
Carrots	5 for small, 2 for Diced or strips
Cauliflower	3
Celery	3
Corn	7 (small ears), 9 (medium), 11 (Large)
Eggplant	4
greens	3 for collards, 2 for all others
onions (blanch until center is heated)	3-7
Rings	10-15 seconds
Peas-Edible pod	1 and 1/2 to 3
Peas-Field (blackeye)	2
Peas-Green	1 and 1/2
Peppers	freeze without blanching
Potatoes	3 to 5
Soybeans-Green	5
Squash-Summer	3
Sweet potatoes	Cook thoroughly, Don't blanch
Tomatoes	freeze without blanching
winter squash and Pumpkins	Cook thoroughly, Don't blanch

Freezing herbs:

Enjoy your own homegrown herbs all winter long! They are easy to freeze (no blanching required). Wash, chop them up, and put them in ice cube trays. Then, fill each cube with water and throw the tray in the freezer. Once it's frozen, divide it out in individual bags and label them.



The next time you are making a sauce, soup or curry, you can just pull out a bag of herbs and drop an ice cube in.

DRYING

Drying is one of the oldest methods of preserving food, and also one of the simplest ways to stock up. In addition to drying vegetables and fruits, you can also easily dry your own herbs and teas to enjoy the garden year-round.

How it works: By removing all of the moisture in a vegetable, you inhibit the growth of the microorganisms that age food, allowing you to store dried food well into the gardening season. Drying preserves the enzymes in vegetables, making them a living food.

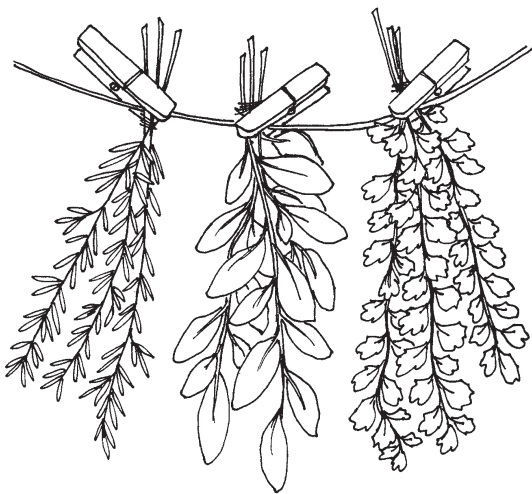
If done right, dried food has more nutrients than canning, retaining its flavor and color for up to a year or more. Dried foods also look great stored in Mason jars in the pantry.

There are several ways to dry your harvest:

Dehydrators: A dehydrator is a small oven with a fan that cooks at low temperatures and dries food without killing the beneficial enzymes. Dehydrators can be expensive, but are a good investment because they are a fool proof way to dry out and store your food. Plus raw foodies (who don't eat food cooked above 118 degrees) can use a dehydrator for making all sorts of stuff, from living flax seed crackers to fruit leathers and yummy kale chips. (See recipe on page 95.)

Regular Oven on Low:

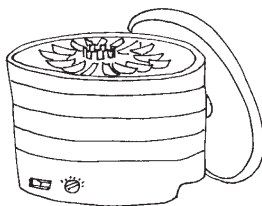
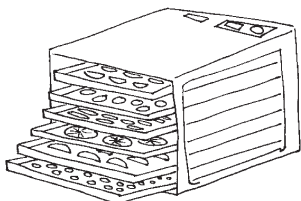
Don't have a food dehydrator? No problem, you can use a regular oven, placed on its lowest setting (but no higher than 180 degrees) with the door propped open so moisture can escape. Spread out the veggies/herbs on a cookie sheet and bake for 3 to 4 hours, checking every hour to make sure they aren't scorched. Once dried, let cool and store in Mason jars or freezer containers.



Solar Drying: If you live in a hot, dry climate where it gets over 85 degrees, you can use the

power of the sun to dry fruits (including tomatoes, yum). Arrange your fruit in a single layer between two fine mesh screens and stack this under a glass window frame. Place directly in the sun for two or three days and bring inside at night. Don't worry about birds or bugs, the top rack will prevent them from hijacking your drying fruit. Or, go totally analog and use your car—just wait for a hot day, crack the windows, and lay your food racks on the dash.

Air Drying Herbs: Drying herbs is simple, so if you have the opportunity to pick a ton of basil or oregano from your CSA or garden, go for it—they dry and store well! Pick your herbs and arrange a bunch of them, tying the cut end with a rubber band. Then, gently wash the herbs and tie up in a dry place, upside down.



Keep it Fresh

Don't use overripe fruit or veggies that are on their way out—they won't be any better dried out. Harvest right before you dry for best taste and nutrients.

RESOURCES

Books

- *Square Foot Gardening*, Mel Bartholomew, 1981
- *Lasagna Gardening*, Patricia Lanza, 1998
- *How to Grow More Vegetables: Than You Ever Thought Possible on Less Land Than You Can Imagine*, John Jeavons, 1995
- *Jeff Ball's 60-Minute Vegetable Garden: Just One Hour a Week for the Most Productive Vegetable Garden Possible*, Jeff Ball, 1992
- *Four-Season Harvest: Organic Vegetables from Your Home Garden All Year Long*, Elliot Coleman, 1999
- *The Self-Sufficient Suburban Gardener*, Jeff Ball, 1983

Seeds

Baker Creek Heirloom Seed Company

The place for heirlooms, Baker Creek Seed Company features more than 1,400 different beautiful heirloom varieties.

www.rareseeds.com

Blackbird Naturals

Offering organic, heirloom garden, and superfood seeds from California.

www.blackbirdnaturals.com

Fedco Seeds

Great Northeast Maine company that sells seed in large and trial-size packets so you can try out a bunch of seeds on the cheap. They also sell great potatoes through Moose Tubers.

www.fedcoseeds.com

Happy Cat Farm

A great selection of heirloom beans, tomatoes, and homesteading supplies.

www.happycatorganics.com

High Mowing Seeds

This cool indie seed company in Vermont features over 500 varieties of certified organic vegetable, open pollinated herb and flower seeds.

www.highmowingseeds.com

Localharvest.org

Buy seeds directly from indie growers across the country.

www.localharvest.org

Sustainable Seed Company

This California-based heirloom seed company, offers a great selection of heirloom vegetable seeds, along with unique varieties of grain, tobacco, cover crops, and more.

www.sustainableseedco.com

Renee's Garden

Heirloom and hybrid flower, herb and vegetables seeds that are super easy to grow. Renee's sells great variety mixes and garden collections so you can try a lot of new varieties without having to spend a lot on individual seed packets.

www.reneesgarden.com

Seeds of Italy

A generous selection of authentic Italian seeds, with hard-to-find culinary varieties of basil, tomatoes, squash, arugula, and tons more.

www.growitalian.com

Seeds of Change

Offering more than 1,200 certified organic seed varieties for the home gardener and market-grower.

www.seedschange.com

Seed Saver's Exchange

Features rare varieties and heirlooms. A non-profit seed organization dedicated to saving and sharing seeds around the country.

www.seedsavers.org

Territorial Seed Company

Family owned seed company with a good selection of heirlooms, grains, potatoes, garlic and plants.

www.territorialseed.com

Underwood Gardens

Good selection of heirloom vegetable, herb and flower seeds.

www.underwoodgardens.com

Homesteading Supplies

Tribest

Featuring primo juicers, dehydrators, wheatgrass kits, yogurt and nut milk makers, grain mills, and anything else you need to make healthy food from your garden.

www.tribest.com

Home Food Processing

All-things homesteading, here you can find fermenting pots, all metal dehydrators, beer/wine making equipment, cabbage shredders, and more.

www.home-food-processing.com

Lehman's

Located in Ohio's Amish Country, this store has a great selection of homesteading stuff.

www.lehmans.com

Canning Jars and lids

Tattler BPA-free Reusable Canning Lids

Most Mason jar lids have BPA, but Tattler lids are BPA-free, and they work with your existing Mason jars. Plus, you can reuse them.

www.reusablecanninglids.com

Weck Canning Jars

These BPA-free jars are so pretty, and you never have to buy lids!

www.weckcanning.com

Growing

Earthbox

Self-watering patio container garden that can grow lots of food in a small box.

www.earthbox.com

Gardener's Supply

Great selection of raised beds, grow bags, seed starting kits and gardening tools.

www.gardeners.com

Garden's Alive

A comprehensive selection of organic fertilizers, pesticides, garden tools, raised beds, and more.

www.gardensalive.com

Garden Tool Co.

Every possible gardening tool you can imagine.

www.gardentoolcompany.com

Herb Kits

Good selection of medicinal, cooking and herbal tea indoor herb garden kits.

www.herbkits.com

Indoor Grow Lights

Great selection of adjustable indoor plant lights.

www.buyplantlights.com

Potted

Stylish collection of modern garden furniture, supplies, books, and more.

www.pottedstore.com

Scout Regalia

DIY raised bed kits and free downloadable plans to make your own.

www.scoutregalia.com

Sprout Home

Modern garden planters accessories, and sustainable furniture with urban garden style.

sprouthome.stores.yahoo.net

Sustainable Seed Company

Good selection of organic fertilizers, organic gardening products and heirloom seeds.

www.sustainableseedco.com

Terrain

Boutique gardening shop featuring a lovely selection of garden gear, containers, books, planters and more.

www.shopterrain.com

The Big Tomato

Big selection of growing supplies, nutrients, and products for the indoor gardener.

www.thebigtomato.com

Urban Worms

Offering vermicomposting kits for any space, free resources and articles about turning your table scrapes into garden-loving, worm food.

www.urban-worms.com

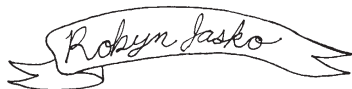
Wolly Pocket

Vertical gardening and modular wall growing systems perfect for city/apartment dwellers.

www.woollypocket.com



ABOUT US



Part foodie, part agrarian, and all rabble rouser, Robyn Jasko started her blog *Grow Indie* in 2009 to give people the tools, know-how and moxie to grow their own food. Although she's lived everywhere, from a llama farm in the country to a tiny brownstone in the city, she's always managed to have a garden, even if it was just a small fire escape tomato plant. In 2010, she and her friend, Colleen Underwood started a community garden in their town so everyone could have a space to grow stuff. In 2012, after planting way too many habanero plants and heirloom garlic, *Homesweet Homegrown Hot Sauces* was born.

Robyn has tried to grow almost everything. (Although we are still waiting to sprout an avocado successfully). She lives with her partner in crime, Paul David, and their son Ajax at their homesweet home in Kutztown, PA. Find her at homesweethomegrown.com and growindie.com.



Born in 1986, Jenn spent her childhood gluing things to cats, collecting bits of string and eating rock salt. Eventually she got tired of trying to avoid people on Facebook and built a rocket ship out of tin cans, which only made it as far as the greater Kempton, PA area. There she established the *Astrobase* with space engineer and dirty potter, R.Poppy. She gets schooled in the ways of weaving and fiber arts at Kutztown University.

Currently Jenn occupies her time by drawing silly cartoons, making gluten-free food stuffs, and wearing googly eyes.



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How to ride a bike for transportation
(whatever your lifestyle)



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by Elly Blue

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We hope this book will serve as food for thought, but only you can decide what parts of it are safe and functional for you and which are not. Your safety is your responsibility; we make no guarantees and disclaim all liability. Whether or not you ride a bicycle, please always be alert, put safety first, and follow your local traffic laws.

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FOREWORD

I started riding a bike at age 20. I didn't have a car and wanted a way to get to work that was faster than taking the bus or walking. So I dusted off the barely-used purple three-speed bicycle that had been too large for me as a child and started to ride.

Bicycling was a revelation. I felt free when I rode. I could do more and see more in a day than ever before. But it was also a learning process. At first, I rode everywhere on the sidewalk. I had weekly wardrobe malfunctions until I learned to roll up my right pants leg and ditched my pencil skirts and tight jackets. I ran through red lights without a thought, and had some close calls. My purse straps dangled through the bottom of my front basket and got caught in my spokes. Riding without fenders in the winter, I went everywhere with a stripe of mud up the back of my coat.

I only learned to ride a bike confidently and safely several years later, after I moved to Portland, Oregon. I made friends with other people who rode bikes everywhere and who loved to talk over every minute detail of cycling. I loved it. From them, I learned to ride in the street in a straight line, to be cautious at intersections, and how and when to signal and yield and merge. I bought lights and fenders and tools and a u-lock and started wearing a helmet. I traded in my heavy old three-speed cruiser for a mountain bike with racks and panniers and found I could carry anything I needed. My proudest moment was when a friend gave me a television and I brought it home on my bike. I stopped asking friends with cars for rides and started riding longer distances just for fun.

Now, 15 years after I began, riding a bicycle is second nature. It can be difficult to remember that I didn't always know the things that now seem like common sense, like making sure my bungee cords stay out of my wheels and never passing another cyclist on the right. Seeing the huge growth of new riders in Portland and the rest of the country in the last few years has brought back those early memories and inspired me to write this book.

Bicycling is fun, safe, and easier and faster than any other mode of transportation. It saves me money, makes me healthy, and above all it brings me joy every day. I learned everything that makes all this possible from the other people riding bikes around me, and am still learning. I want to pass along some of this knowledge to you.

This book is a resource for people who are new to bicycle transportation as well as for those who are looking to make their everyday bicycling experience more awesome.

My hope is that this book will inspire you with the confidence and curiosity to continue asking questions and trying new things as you pursue the pleasure of exploring your world by bicycle.

Enjoy the ride!

—Elly Blue, Portland, Oregon, July 2012
everydaybicycling.com

INTRODUCTION

Bicycling for transportation has become hugely popular in recent years. Many thousands of people are taking up cycling, each of them with a unique set of reasons. People ride for fitness, for fashion, to save money, to save time, for environmental reasons, out of political motivations (on both sides of the aisle), to spend time with friends and family, to remember what it felt like to be young, or simply for the joy of it.

If you've made the decision to start riding, or have an inkling that you might, you've come to the right place. This book is intended to help you integrate bicycling into your daily life in a way that works for you, no matter what your reasons for riding.

You often hear people say, in a self-deprecating tone, "I'm just a fair weather cyclist," or "I only ride on weekends." But any time you get on a bike, that's great. It doesn't matter if you drive or take transit for nine months of the year, or put your bike on the car and drive halfway to work and ride the rest of the way, or keep your riding strictly to your neighborhood. Any time you ride a bike, that's more than enough.

All you need to get started bicycling is the bike itself and the will to ride it. But bicycling often becomes easier and more fun when you have people to talk about all the details with. This book is no replacement for those friends, but it's a start—a set of ideas and resources to try out, debate, and decide on for yourself.

You will at times encounter people who have strong, and often loud, opinions about every aspect of how you ride. Some of these folks will have been riding longer than you, some will have written books or blogs, some will be industry professionals, and some will just be eager to speak their mind. Listen to them if you like, but don't let their opinions and theories override your own experience, knowledge, and needs.

Most bicycle transportation guides are written for people whose only needs are commuting to and from work. But for most of us, our transportation needs are more complicated than that. This book should demonstrate that a bicycle is more than capable of rising to most any challenge.

Let's start by looking at the very basic things you need to know about operating a bicycle on the road. Then we'll help you integrate these bicycling skills into your daily life, choose the right bicycle, and keep it in good working order. My favorite topic follows: how to carry anything by bicycle (yes, anything!). Later on in the book I turned to the growing community of families who get around by bike to cover the ins and outs of bicycling with children. And the final chapter is for those who want to improve their communities for cycling, be it through whimsical fun or political advocacy.

Whatever your reasons, style, and experiences riding, don't forget to have fun!

1

How to ride a bike

So you've decided to give bicycling a try. Congratulations!

It's easy. It's fun! You just get on the bike and ride.

Right?

Well, sort of.

That's all I knew when I first started riding around town. I wasn't the greatest bike rider, poking along on the sidewalk to the dismay of people trying to walk there. Sometimes I'd get in the street, but I wouldn't always slow down or look first. And I wasn't always very steady on the bicycle. One time, I turned my head towards a distant sound and ended up riding into a wall. On another occasion I was standing at a red light, waiting, and just fell down in a heap with my bike on top of me.

It was only years later, when I joined an email list for detailed discussions about all the minutiae of riding in traffic that I learned how much I didn't know. As I made more friends who also rode everywhere, we talked about what we were doing, what gear we used, what routes we chose, how to be part of traffic.

Once I began to learn, my transition from wobbly novice to confident everyday rider was only a matter of time. I hope this chapter can serve to let you in on some of the basics I wish someone had told me back in 1999.

Learning to ride

If your last time on a bike was as a kid, getting back in the saddle might be just like riding a bike—or it might not be so pat.

Starting from scratch

The most difficult part of learning to ride, hands down, will be walking out the door with your bike. Take a deep breath. You can do it!

The best place to learn is a quiet back street or an empty parking lot. Lower your bike seat all the way so that you can put your feet on the ground while you sit. Scoot around, lifting your feet off the ground and coasting for longer each time. Have a friend hold on or guide you at first if it helps. But eventually, they'll need to let go. It's counterintuitive, but the faster you go, the easier it will be to balance.

Starting and stopping can be tricky at first. Think of your pedal as a step for climbing up and down to the seat. Think about where you will want your pedals to be when you start again, and plan accordingly. On most bikes you can turn your pedals backwards while you're stopped to get them positioned for a strong start.

Try to anticipate stops in advance so you can brake slowly, using both hands at once. The rear brake should be your default when you're first learning. The front brake will stop you faster and better, but if you grab it hard by itself you risk locking up your front wheel and flying head-first over your handlebars.

Until you develop an instinct for the bike, your body will want to steer it in whatever direction you are looking. While you're still in the parking lot, practice riding in as straight a line as possible while looking left and right and glancing back over each shoulder.

Your skill, experience, and fitness aren't important. The main things you need are patience and confidence. If the person helping you learn is making you feel anxious or self-conscious, ditch them. It's time for you to learn how to fly!

Each new thing will feel a little clumsy the first few times you do it. After that, you'll never think about it again. It might take only ten minutes to learn to ride. It might take an hour. It might take several sessions in the parking lot. You may not get everything right away, but keep going and you'll master the art of bicycling faster than you can believe.

Advanced road skills

Riding a bicycle is amazingly simple, yet there is always more to learn. If you've already mastered the art of staying upright in the saddle, but wish for the skills and confidence to handle every situation in traffic, it's worth continuing your education.

In most cities, you'll find a handful of League Certified Instructors (LCIs), trained by the League of American Bicyclists to teach adults and youth to ride safely in traffic, through a series of day long classes. If League instruction is not available, the motorcycle training course offered by your local DMV can be an invaluable opportunity to learn defensive two-wheeled driving.

For those who prefer to learn on their own, the two classic guides to advanced transportation cycling skills are *Effective Cycling* by John Forester and *The Art of Cycling* by Robert Hurst.

Hitting the road

No matter what your level of experience with riding, starting out biking in traffic for the first time will seem new and strange. The good news, though, is how quickly it becomes second nature. Truly anyone can ride a bicycle. You'll learn best as you ride; in the meantime, here are some basic ideas to build on and make your own.

Being traffic

Here are three maxims for riding a bicycle on the road: Put safety first, for yourself and others. Be courteous second. Third, be legal.

The thing to keep in mind about traffic is that it isn't just cars. When you're on a bicycle, you are not just navigating traffic: You are a part of traffic. So is everyone else in the roadway, whether they're biking, driving, walking, skateboarding, running to catch their bus, getting out of a car, or standing on the corner waiting to cross. Even if someone is not behaving legally and predictably, they are still traffic.

Your job is to pay attention. Notice who has the right of way at each moment. Yield or move forward when it's your turn. Be constantly alert for exceptions, like when someone cuts in front of you and you need to yield out of turn. Sometimes this will mean you'll need to act just like you're driving; sometimes you'll act like a pedestrian; all the time you'll be on a bike.

Not everyone will agree with everything written here. And not everything will apply to every person or every city or every road. Take it all with a grain of salt. Think about it, talk about it, and err on the side of caution when you can. Whatever you do, ride predictably, communicate clearly, and pay attention. So long as you remember that everyone else on the road may not be doing these things, you'll be okay.

Choosing a route

Most people, when they first start riding, choose by instinct to ride on the most direct route to where they're going, the same one you take while driving or on the bus.

The problem with the most direct route is that it's likely to be a fast arterial road that goes straight from your house to your destination. But by all means, if you can ride comfortably on it, go for it. Use this chapter as your guide for how to handle yourself.

Most people don't love these roads. They are fast, they are loud, they reek of exhaust, and people in cars don't always expect to see you there and may express that aggressively. If there's a bike lane on this road, it may just be your best bet—but be cautious of those turning cars.

To find other routes, your best friend is a map. If your area has a bike map, you may be able to get one for free from the transportation department or a bike shop. If there is no bike map, then find the most detailed street map you can and look for different ways to go.

If you know someone else who rides, talk with them about which roads they like best and least. There might be a detour that takes you through quiet, residential streets, trading an extra ten minutes of travel time for your sanity.

Once you start trying out every permutation of how to get from point A to point B, you'll soon find your favorite ways, as well as the fastest. You may end up needing to get creative. The trickiest parts of the route will doubtless be the crossings of busy streets. Sometimes these will require you to make yet another detour, or to get off your bike and act like a pedestrian, or to ride on the sidewalk for half a block. You probably aren't the only person who has trouble with these difficult connections. See Chapter 6 for advocacy tips.

Don't be a salmon

“[There is] a group of riders who are a menace to us all. I am referring of course to those directionally-challenged irritants known as ‘bike salmon.’”

—BikeSnobNYC

Always ride with traffic, not against it.

This advice may go against what you learned as a kid. Conventional wisdom used to be to always walk and bike facing traffic, so you could see what was coming and get out of the way. But that advice, like so many childhood myths, turns out to be not just wrong, but more dangerous.

Wrong way cyclists are more likely to get into a crash than people riding with traffic. Why? In a word: Intersections. And one more word: Driveways. And parking lot exits. People in cars look left before they turn right, because that's where they expect traffic—including you—to be coming from.

If you live in a city with a lot of one-way streets, it's tempting to ride the wrong way down them as an alternative to riding three blocks around. Some cities are starting to see the wisdom of converting one way streets back to two directions, in part to accommodate this natural flow.

I don't advise wrong way riding for any reason. Nobody expects to see you coming, and police love to write tickets for this.

Neighborhood streets

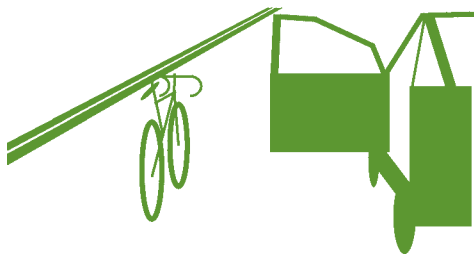
Quiet neighborhood streets are often the best places to ride. Car traffic is relatively slow, there's more room to share than on a separated path, and you have yards and houses to look at and people to say hello to.

Even on neighborhood streets, it's a good idea to take the lane. Ride in a relatively straight line, without weaving in and out of the spaces between parked cars. Keep a nice, car-door length buffer between yourself and any parked cars. Keep your eyes open for people doing neighborhoody things like backing out of a driveway or running into the street. And be extra cautious at intersections; many drivers take a casual approach to stop signs on neighborhood streets. You need to be at least as alert for cross-traffic at intersections where you have the right of way as at ones where you don't.

Bike lanes

Bike lanes, while they are a beautiful thing, don't guarantee your safety, and aren't always well-designed. Often, the bike lane puts you in the direct path of opening car doors, turning cars and trucks, wrong-way cyclists, pedestrians stepping out from between parked cars, and other hazards.

On many busy streets, having a bike lane is much better than having no bike lane at all—it reminds drivers that you have the right to be on the road, and carves out a small space for you to occupy. Whenever you are in a bike lane, stay alert and be prepared to stop or merge at a moment's notice.



Busy streets

When you're riding on a street without a bike lane, or if the bike lane is full of gravel or glass, where do you belong in the traffic lane?

Riding right down the middle of it.

This is daunting, but important.

Many new riders will instinctively hug the edge of the road, no matter how narrow it is. When there's an intersection or a space between parked cars, it's tempting to weave to the right to buy a momentary sense of breathing room before plunging back into the fray.

Similarly, the main reason it's a bad idea to ride in the parking lane is the danger of not being seen by the people driving behind you or turning onto the road in front of you.

In fact, the safest place to ride in a narrow traffic lane is nearly always far enough to the left to put you, if there are parked cars, at least four feet from the line of parked cars—safely out of the danger of getting knocked off your bike when someone suddenly flings open their car door in your path.

It's a good idea to ride towards the center of the lane even if there are no parked cars. There is a psychological reason for this. When you ride further to the left, your position signals to people driving behind you that it is not safe to pass you in the same lane; they are more likely to fully merge, giving

you enough space, or else wait until it's safe to pass. Riding all the way to the right, on the other hand, tempts the person behind you to squeeze past, dangerously close.

On the other hand, when there are people behind you who want to pass and you actually do have space to move—for instance, an entire block with no parked cars—treat it as any other lane merge. Check over your shoulder, signal that you'll be moving right, and then move right. Be sure to give yourself enough space to merge back left into the travel lane when your window ends, and do it properly, with a look and a signal.

People may need to wait a minute to pass you, it's true, and some people will get impatient. It's okay. They can pass in the next lane when they have an opening, or when it's safe for you to pull to the right. If the person behind you is not slowing down, or if an impatient line of cars is building up, you can always pull over and let them by. And while I don't recommend weaving between lanes, sometimes riding with a little bit of a wiggle can signal to the drivers behind you that they need to give you some extra room when they do pass you.

Taking the lane applies on busy and quiet streets alike. Practice on the quiet ones first, the ones where you are probably going the speed of car traffic anyway. It might feel strange at first, but you'll find that you feel more confident and that people in cars give you more breathing room and act more predictably as well.

If you have a wide shoulder available, then by all means use it. And if there is a lot of aggressive traffic with speeds greater than 25 or 30 mph, it's probably better to find another route. Otherwise, take that lane.

Sidewalks

In some places it is illegal to ride on the sidewalk, and in others it is the only reasonable place. But you're almost always better off in the street, even if it means taking an alternate route. Your chances of being hit on the sidewalk by someone turning in or out of a driveway are higher than if you are in the street. And you also pose a danger to people walking or stepping out of doorways.

If you must ride on the sidewalk, then behave as much like a pedestrian as possible. Ride at the speed of a walk or a slow jog; be alert and prepared to stop at any time. Be most careful at intersections. Stop and look both ways before crossing.

Sharing the path

Off-road paths, rail trails, multi-use paths, linear parks—whatever you call them, they're paved trails, usually along waterfronts or disused rail lines. Originally intended for recreation, they're coming to serve as important bicycle transportation links. On any given day, you'll find people bicycling, walking, jogging, rollerblading, and pushing strollers, often with kids and dogs. Unfortunately, this mix is not always compatible on an eight or twelve foot wide path.

When many people first start to ride a bike, they feel most comfortable on these paths, away from car traffic. They can be quite safe, especially if they are relatively empty of other traffic; but when paths like these are crowded they are the site of a relatively high number of crashes. Just like on the road, you cannot have any expectation of how your fellow path users will behave in any given situation.

You can ride on these paths relatively safely if you treat them with appropriate caution. If nobody's in sight and there are no intersections, go as fast as you want. When you need to pass someone, slow down—to their speed if necessary, and stopping if necessary. Give them ample space as you pass and an audible warning well before. Assume they are just as likely to swerve out in front of you as to move over. Likewise, be alert to the possibility of someone passing you, and try not to weave and swerve, or ride side-by-side on a crowded path.

Intersections

Intersections are where most crashes happen. When you're bicycling, it's important to be hyperaware and to remember that people turning—left or right—probably will not see you, especially if you are all the way to the right, or if it's pouring down rain. It's also important not to rely on people's turn signals or lack thereof. Eye contact, on the other hand, is an excellent tool. Here's a run down on how to handle yourself at intersections.

Turning

Signal your turns!

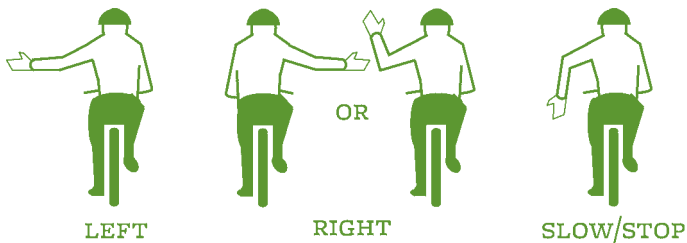
Signaling is traditionally done with the left arm. Hold it out straight to signal a left turn, up at 90 degrees to signal a right turn, and down at 90 degrees to show your intention to stop or slow down.

You can also signal a right turn by holding your right arm out straight. This method is subject to debate. Proponents point out that it makes more sense to drivers, many of whom have forgotten their long-ago driver's ed classes and interpret the traditional right turn signal to mean you're waving hello (or worse). Opponents say that you're better off having a hand by your right (rear) brake in case you need to stop suddenly. Whichever you choose, always signal your turns!

Left turns off of busy roads can pose a sticky situation, since you're most likely to be over to the right. Sometimes you're even required to be on the right. So how do you turn left?

You have a couple of options. You can turn just as though you were in a car, signaling, looking over your shoulder, and merging left in the block before your turn.

If traffic is fast or you'd just rather stay to the right, or in the bike lane, you can also avail yourself of the practice known as the "Copenhagen left." Stay to the right as you go through the intersection, being wary as always of turning cars. Stop at the opposite corner. Make sure you're out of the path of whoever is behind you and turn your bike 90 degrees so you are facing the



direction you want to go. When that light turns green, voila, you're ready to continue ahead.

The art of yielding

Yielding is a constant question. Who has the right of way? Who goes first?

According to the letter of the law, you should yield the same exact way on a bike as you should in a car. There are exceptions in some states, but for the most part this holds true.

If you have a stop sign, yield. If you have a red light, yield. When in doubt, yield to whoever is on your right. Yield to anyone who is in front of you. Yield to the bus. Always, always, always yield to pedestrians, schoolbuses, and emergency vehicles.

At a four way stop or an intersection without stop signs, the person who gets there first gets to go first. If two people arrive at the same time, the person to the right goes first. If someone is waiting to cross the street, smile and wave them across.

Be confident in asserting your right of way. But even when you don't have to, sometimes it's best to yield anyway. If someone's clearly in a hurry, or you're concerned they might not see you, let them go first. Give some extra leeway to anyone who is clearly confused or impaired. In all cases, do what's safe and polite, and be ready to correct your course when things change.

In a car, the culture is all about racing up and claiming your right of way. On a bicycle, it's all too tempting to behave the same way. But you have more to lose on a bike—and more to gain. On a bike, yield your right of way with generosity rather than aggression.

To stop or not to stop

Ah yes. Stopping. In any conversation about bicycling, no subject except helmets is guaranteed to raise more heated opinions.

Some say absolute compliance with the law is the only option. Others retort that there's a double standard and that most people don't come to a complete stop while driving. Yet others argue that bicycling is different enough from driving that the same laws don't make sense.

When it comes to actual situations on the road, these arguments quickly break down. The strict legalist rolls, slowly and cautiously, through the stop sign. The avowed rebels might wait for the light to change even when nobody is coming. Here's a guide to how to handle the situation on the ground.

Red lights

Red lights provide the clearest guidance for everyone. When the light is green, go. When it is red or yellow, stop.

Easy, right? But there's a catch. In many places, red lights are programmed to only turn green when a car shows up. So what happens when you're waiting and waiting....but there's no car?

This was the dilemma that led Idaho, in 1981, to pass legislation allowing people on bicycles to go forward if the way was clear after stopping at a red light. The law was deemed preferable to the expense of retrofitting every major intersection in the state to detect bicycles.

If your local lights can be triggered by a bicycle, then learn the trick of doing this. Usually there is a metal circle or diamond on the ground. If you position one of your wheels to touch part of it, the metal of your spokes and rims should trigger the light to change. If they aren't set up this way, then you have a dilemma. One option is to go forward, Idaho style, as soon as it's safe, treating the light as though it were a stop sign. In some places, the law allows this. In others it doesn't, in which case you may be better off dismounting your bike to cross like a pedestrian.

Stop signs

Stop signs pose their own set of questions. The other famous component of the Idaho stop law is a clause that allows people on bicycles to treat stop signs as though they are yield signs.

Yielding does not mean blowing through at full speed. Think of the Idaho stop as what a runner would do before crossing a street. It means slowing down to nearly a stop and looking left, then right, then left again to make sure the coast is clear. If it isn't, stop. If it is, proceed with caution.

The Idaho stop, though not legally sanctioned in any of the other 49 states, is a nearly universal practice among bicycle riders. Even when done safely, it has significant downsides. Where there is police enforcement around stop signs, fines are often very high. If running a stop sign causes a crash, any resulting court case or insurance decision will not likely go well for you. For many reasons including these, I recommend riding safely and yielding when appropriate at all times.

Other situations

Road rage

It will happen. Someone will swerve too close or shout at you to get off the road. You'll experience an adrenaline rush, and some combination of fear and anger.

It's easy to rage back. But tempting as it may be to return fire with a middle finger or a few choice insults, it's often far better not to escalate an argument with someone of unknown temper who is driving a two ton vehicle. Let the moment go and continue on your way.

Seize the opportunity to practice memorizing license plate numbers. If the person was obviously drunk, or if they hit you or threw something at you, call 911. You have the right to ride down the street without being threatened, assaulted, or harassed.

The zen of bicycling

You can notice a lot from the seat of the bike; you see the world from new angles. But at the same time, it's all too easy to get distracted from the sights and sounds and smells around you. Bicycling is an opportunity to practice existing in the moment, noticing your breath, your bicycle, and everything around you. You'll enjoy yourself, ride more safely, and be less prone to road rage.

What to do if you are in a crash

If you are involved in a crash, or witness one, call 911 immediately. Get the car's license plate number and the driver's insurance information, if possible. Make sure you get contact information for any witnesses. Call the police and insist on a report. If you might be injured, get it looked at even if you don't feel hurt in the adrenaline spike of the moment. Write down every detail you can recall before you sleep.

If the other person has insurance, it should cover your medical and bike repair or replacement costs. If you have car insurance, that should also cover you in the same way while you're on your bicycle. If neither you nor the other person has car insurance, your own health insurance, if you have it, may cover your bills, and your homeowner's or renter's insurance may cover your bike. Begin the saga of dealing with insurance right away.

If your bike is damaged, you'll need to have it evaluated by a bike shop in order for insurance to cover repair or replacement. Different bike shops will give wildly different assessments of the same bike, so it's worth going to two or three.

Bicycle crashes occupy a grey area in bureaucratic procedures. Your situation may not be a perfect fit with the paperwork someone has in front of them, and this can tempt people to cut corners or skip over your case. It's unfortunate, but in many places police, media, insurance adjustors, and juries will empathize with the motorist and assume that the person riding the bicycle was at fault, no matter what actually happened. Insist on being treated fairly, double check every detail, and when in doubt get a lawyer—preferably one who rides a bike herself.

Outfitting yourself for safety

You can help make your presence and intentions on the road clear by the way you ride; you can make it even more clear by making yourself as visible and audible as possible.

Visibility

You may have seen her, perhaps just at the last minute—the cycling ninja, riding down an unlit residential street at night, in all black, with no lights, perhaps taking a far-too-casual approach to stop signs.

While it's true that there are no guarantees when it comes to safety, on or off the bike, it can only help to make yourself more visible.

You don't have to spend a lot of money or adhere to a certain look. The one key is, as with everything, to do what you feel comfortable with and what works with your lifestyle and budget.

Make a more informed decision by having a friend put on something similar to the setup you use and ride around the block in the dark. If they aren't clearly visible from half a block away, then adjust what you're doing until it works.

Lights

In the U.S., most bicycles do not come with lights. Yet in most states you are required to have lights on your bike at night or in dark weather. Specifics vary widely—it's a good idea to look up your local statute.

Law aside, you will definitely need a front light (usually white) and a rear light (usually red).

Beyond that, the type of light you need depends largely on where you ride at night. If you are primarily on well-lit city streets, then your main goal is to be seen. If your commute takes you along unmaintained roads or unlit paths, then you'll want a headlight that will illuminate the road ahead of you.

Prices range from \$5 for little rubber lights that run on watch batteries to hundreds of dollars for what amounts to spotlights. If your comfort level and budget tend towards the latter, be aware of oncoming traffic and turn the beam slightly downward so that you don't blind people.

The most common variety of lights are small, battery powered "blinkies" that clip on to mounts that you can attach to your handlebars and seat post. A cheap set of these are good starter lights, though they tend to break, their mounts are annoying, and they tend to get turned on in your bag and run out of batteries at the most inconvenient times.

If you leave these lights on your bike, they will eventually be stolen. I generally clip a red blinkie onto my waistband or bag rather than the bike itself so that I don't forget to take it off when I park. The front light goes on your handlebars and is easier to remember. Some people like to attach their lights to their helmets with rubber bands or special mounts. Others hedge their bets with two sets of lights with staggered battery life—one for the bike, one for the helmet.

If you're stranded on a dark night with only one set of working batteries, the front light is your best choice for them. People driving up behind you can still see you in their headlights if you have no rear light, especially if you have a reflector back there. Your greatest danger comes from people turning off of side streets in front of you. Their headlights are pointed away from you, further up the road, making it difficult for them to see you coming.

Generator lights

Battery-powered lights are quick and easy and can be cheap. Grab some and start riding! But for the long run, plan on getting yourself free of them.

Generator lights mount permanently to your bike, are difficult to steal, and will never be forgotten or run out of batteries. Standard 60 years ago, today they're coming back into style as more people want the convenience of just being able to get on the bike and go.

Friction generators are the classics. A little roller rests against your tire and powers your light when your wheel turns. You push a lever to release the roller when it's daylight. As you can guess, this type of light will slow you down a bit, creating marginally more work as you pedal.

Hub generator lights are the more modern solution. They run off the energy produced by moving parts inside your wheel as it turns, not slowing you down one bit. You will need to buy a new wheel for each light, so these are a substantial investment.

Another type of light is powered by magnets that you clip to your spokes. Each time a magnet passes the light it gets a small burst of power, just enough to flash (many cycle computers work the same way). Some models

have a battery built in that can hold a charge for a few minutes so that your lights continue to flash while you are stopped at a light. Magnet lights have the disadvantage of being fairly dim and low to the ground, but are excellent in better-lit areas or if you like to run two sets of lights. They are a value at \$45 to \$60 per set with no need to buy batteries.

Get reflective

I used to scoff at reflectors and reflective gear—until one night when I accepted a ride home from a friend. We drove slowly up a road with a heavily trafficked bike lane on the right. The reflective panels on the backs of panniers, jackets, and shoes, nearly invisible by day, glowed like a beacon in our headlights, far outshining the firefly flickering of battery-powered blinkies.

In some places, a red rear reflector is a legal alternative to a red rear light. It's good to have one even if you ride with a light—it will never run out of batteries or get stolen or wiggle its way off your waistband to break open on the ground.

Many new bikes and most older ones come equipped with reflectors on the seatpost, on the headtube, on the pedals, and in the spokes. If your bike doesn't have these, look for cheap reflectors in the parts bin at your local bike repair coop, or new ones for sale online.

For better coverage and more creativity, you can buy reflective sticky tape in several colors. Several intrepid companies sell kits with pre-cut reflective tape to cover all parts of your bike, helmet, and gear in various colors and patterns. You can buy little, reflective stickers to adorn your helmet and water bottle that come in shapes ranging from hearts to spaceships. There are even lines of jewelry and clothing made of reflective materials.

Keep in mind that reflectors will make you more visible in a car's headlights—but only lights will enable someone who is walking or bicycling to see you on a dark road.

Clothing

Light colored clothing makes a big difference in being visible at night. As you ride more and your wardrobe evolves, you may find yourself choosing the light green sweater over the dark brown one.

If you want the extra visibility, many technical apparel companies sell jackets so bright yellow they hurt your eyes and show up in headlights like great green flares. There are also many products you can deck yourself out with, from the bright orange safety vest to reflective ankle straps.

Sometimes the best strategy for daytime visibility is to look a little out of the ordinary. In some places this might simply mean wearing a suit and tie or a skirt and heels to ride. In others, a top hat or proverbial clown suit might be what you need to stand out. See Chapter 2 for more on the bicycling wardrobe.

The humble bicycle bell

If you want to be heard by truck drivers, buy an air horn for your handlebars. For other situations, the classic bicycle bell is the ideal tool for letting somebody know that you are coming along the road towards their about-to-open car door, or that are about to pass them on the bike path.

All bikes used to come with bells. Back in the 1950s, bells were a part of the transportation vernacular. People simply knew: if you hear a bike bell, move to the right.

This is a practice worth bringing back. You can buy a bell for your bike at any bike shop for around \$5 and mount it to your handlebars in seconds with a screwdriver. If you want something that will make a nicer sound and last more than a year, you'll end up spending \$10 or \$15.

If you have no bell, saying “on your left” prior to passing someone can be effective but be prepared for it to be misunderstood by a surprised pedestrian whose instinct is to step left when hearing the word “left.”

Mirrors

Mirrors that attach to either your helmet or handlebars can be obtained for under \$15.

A mirror can help you see what's sneaking up on you—the city bus with the engine in the back that you don't hear until it's breathing down your neck, or fellow bike rider about to recklessly squeeze by you on the right in the bike lane.

For urban riding, you need to constantly be aware of what's happening 360 degrees around you. Some people find mirrors to be distracting in the city and not as useful as a full-on, head-swiveling glance over the shoulder.

But if you spend a lot of time sharing fast, narrow roads with cars that primarily come from one direction—directly behind you—a mirror can be a lifesaver once you've perfected that regular quick little glance.

Helmets

“I began wearing a helmet when I undertook responsibility toward a significant other, not for myself. I have gotten used to it, and it is a very convenient place to hang a mirror.” —R.W., Portland

Based on the data available, you would be wise to wear a helmet while riding in a car or walking along or across any busy road. But only when you ride a bicycle are helmets expected and socially acceptable. I wear one almost every time I ride and have been particularly glad of it twice. I recommend that you wear a helmet as well, and that you make sure that it fits over your forehead and that the straps are adjusted properly to keep it in place.

That said, helmets are far from the last word in bicycle safety. Helmets provide limited protection in specific circumstances. They protect you the most in the sort of crashes that typically happen riding at slower speeds and on streets without many cars. In fast traffic, there are more types of crashes that can happen, and helmets will serve you well in some of them.

But in the bigger picture, bicycle helmets have no ability to prevent crashes or create a safer transportation system. In places where helmet use is legally required, fewer people tend to ride bikes—which has the effect of making cycling more dangerous.

A final note on safety

This chapter should give you an idea of how to ride confidently, predictably, and defensively. These practices, plus some alertness and caution, should keep you reasonably safe. Helmets can protect you from certain kinds of crashes, and audible and visual signals can help you communicate your presence and intentions to others.

But the one single thing that's been proven to significantly improve bicycle safety is the presence of more people riding bikes on the road.

That's it. It's no cure-all, but the more people out there on bikes, the more understanding, attention, and respect we tend to get from people driving cars and trucks.

There is recent research showing that this safety in numbers phenomenon is enjoyed not only by people bicycling, but by everyone else on the road. The simple presence of bike lanes on a road has been found to make streets safer for people walking and even driving.

There are no guarantees in life; using the roads, whether you're driving, bicycling, or walking, is the most dangerous thing you'll do on any given day. But safety is not just a matter of what happens in crashes. Research consistently shows that the risks posed to your health by inactivity are far greater than any risks incurred while transporting yourself around by two wheels or two feet.

So get out there and ride. Do the best you can, and don't forget to have fun.

2

Your life, by bike

“It’s easier to bike if you have your things organized. If you have your bag and your gloves and your rain cape and your lights all together and you know where they are, you can just grab them and go. If you need to go and you can’t find your gloves, you’ll be annoyed.” —Sara S.

When I started riding a bike, I didn’t make any wardrobe changes until I had to. At the time I had a professional office job, so I wore skirts, polyester blouses, and jackets. As I biked, my wardrobe evolved. My tighter skirts tended to split up the seams, sometimes requiring emergency safety-pin repairs at work. The fuller, longer ones would become mangled in the spokes, and I migrated towards trousers and flared, knee-length skirts. Loose, usually cotton blouses replaced sweat-producing (and smelly!) polyester ones. Most of my jackets were too tight across my shoulders when I reached forward for the handlebars, so I took to wearing sweaters instead.

As I biked more and more frequently the less functional clothes got pushed to the back of my closet and eventually out of my life. These changes happened gradually, but eventually all my clothes were far more comfortable and durable, on and off the bike, than what I’d been wearing before.

Your life, by bike

Starting to bike is a bit like getting a new piece of furniture or moving to a new neighborhood. You'll need to rearrange some things and change some habits to make everything functional and harmonious.

When you switch from driving or transit to bicycling, it's like you suddenly have a whole different map of your community. Bicycling changes the pace of your life.

Some trips will be much faster by bike. You won't be stuck in traffic or on the bus, you can take short cuts, and you won't have to look for parking. Bicycling can make your commute time more predictable, and in many cases even faster than driving—particularly when you factor in the vagaries of rush hour traffic and parking. The same 15 mph speed that feels painfully slow in a car can be exhilarating on a bike.

Other trips will be slower. You might be stuck weaving through back streets with stop signs every block rather than taking the direct but dangerous six lane arterial that you're used to driving on. The freeway, instead of making your trip across town magically fast, becomes a barrier that you need to go out of your way to cross.

You might start planning your week's errands in advance, leaving more time between obligations, and shifting your daily travel patterns to shorten distances and reduce the number of trips you take. You'll find you spend a few more minutes gathering your things to leave the house—do you have your lights? Is your water bottle full? Enough air in the tires? Is it glove weather yet?

But slowing down doesn't necessarily mean losing time. If you replace a trip to the gym with a half hour commute each way one day a week, you've just saved both time and money. Pedaling your kids to school in a cargo bike rather than driving them adds up to more quality time spent with your family. A ride in the morning can clear your head and make your day's work more efficient and fruitful.

As your map of the city shifts, so will your life. How fast or slow you want your bicycling life to be is a choice that will help determine what kind of bicycle you ride, what you wear, and even where you work, what you buy, and how you socialize.

Some parts of this will be thrilling, others blissful, others deeply frustrating. Sometimes you'll find you want to ride fast, others slow. Sometimes it's not worth it to bike at all. There's no right and wrong way to do it.

Work

Recently I met a lawyer who told me that she loves to go on recreational bike rides on the weekends. She wanted to start riding the four miles into work once a week, but was concerned about being able to commute by bike while maintaining a professional appearance.

I suggested that she take a trial run on a weekend. That experience would help her figure out her clothes, her bike set-up, how much time it would take, and what to expect on her route. She wrote back the next week and said she'd begun commuting and found it far easier than she had expected—and was having a blast.

Bicycle commuting doesn't have to be complicated—and if your commute is your major transportation need every day, it can be very simple indeed.

Many guides recommend that commuters wear technical bicycling kits with padded shorts, driving once a week to bring a fresh set of clothes to the office. If your commute is longer than five miles or so each way, or if you are commuting in very hot or rainy weather, this might be your best strategy.

Some work places have showers and locker rooms available where bike commuters can clean up and change clothes when they arrive at work. At others, you'll need to manage with a bathroom sink.

For many people, though, all this isn't necessary. Bicycling to work does not have to be an athletic pursuit, and can be done wearing professional attire and carrying all your work things in a pannier, plus a rain jacket and a spare

set of dry socks just in case. The wardrobe tips further down in this chapter should help you to maintain the dress code of your workplace while bicycling.

Parking your bicycle while you are at work may be more of a challenge. If you live in a city with relatively low levels of bike theft, parking on the street shouldn't be a problem. Some office buildings have designated bike parking areas or rooms; in some cities this is required, and it's always worth asking. You also may be able to simply bring your bike into your office, perhaps using the freight elevator.

If your workplace is truly not bicycle friendly, it may be necessary to take creative measures, such as investing in a cheap bicycle that can be parked outside all day, or in a folding bicycle that you can keep tucked under your desk.

An increasing number of cities offer commuters centrally located “bike stations” that provide secure, indoor bike parking for a membership fee. These are often located next to transit hubs, and some of them provide locker rooms and even showers for members to use and are attached to full-service bike shops.

Shopping and errands

Commuting to work is hardly the limit of our weekly transportation needs. We must eat, and there are groceries to buy, sometimes in large quantities. There are basic household needs like dish soap, toilet paper. Perhaps you have laundry or dry cleaning to transport. And what about furniture, lumber, plumbing supplies, or a young apple tree? It's possible to carry all of these things and more by bicycle. How to do so is covered thoroughly in the next chapter.

If you are transitioning from driving to bicycling, you may find yourself shopping for groceries and everything else more frequently, buying smaller quantities at a time. This can potentially be more expensive and time consuming than doing big weekly shops at discount stores on the outskirts of town. But it also might end up being surprisingly easier and, in the long run, more affordable.

Others, particularly parents of young children, find that when they start bicycling they shop less often, doing as many errands as possible once a week or less.

As you explore your neighborhood by bike you may end up finding a variety of different options you might not have otherwise noticed. Look for family-owned grocery stores specializing in imported food, corner markets with a decent selection of fresh vegetables, and small stores that sell everything from blank paper to curtain rods to fresh baked bread.

You may find that shopping more frequently and closer to home takes less time than a long weekend outing, and that buying only what you need for the next two days results in less waste. Or you may not—and if you find yourself renting or borrowing a car every week or two to stock up, that’s great. It’s all about figuring out what works best for you.

Social life

If the people you spend most of your time with don’t ride, you may find yourself as a passenger in a car when you are with them—or they may find themselves joining you on a bicycle.

Sometimes things can get awkward. Some people will incessantly ask, with a pitying tone, if they can give you a ride in their car. Others will assume you don’t want to join them in an activity they plan to attend by car. Some people will lecture you about safety; many get defensive, assuming that you are judging them for not bicycling also.

For all these awkward interactions, though, you’ll encounter many others who will cheer you on, and some who will be inspired to join you. Just take it all in stride and keep on living your life the way you choose.

The good news, though, is that bicycling is an excellent way to meet people. Joining a group ride, an advocacy organization, or other cyclists who you meet at work or school or on the bike path are ways to make friends with whom it feels normal and comfortable to go out by bicycle to see a movie or take the kids to the park.

Where you live

You'll soon learn the ins and outs of navigating your way around your daily life. Once you've begun bicycling, it will quickly become clear what works well and what you wish were different. Only a few blocks or one major street crossing can make all the difference in whether or not it is easy and fun to ride from your house to the store.

If you work, shop, visit, and play on one side of a busy street without good crossings, and live on the other, you will likely find yourself thinking about ways to avoid this. Perhaps moving is feasible—just as people will move a few blocks so their kids can go to a better school, others choose to move a short distance away so they can more freely choose to ride everywhere they go.

Moving is often not an option; but you might be able to find a new job, school, or grocery store or laundromat that are easier to bike to (this doesn't always mean it is actually closer). Or your bicycle landscape might just be something you learn to live with over time. And advocacy is always an option—sometimes all you have to do is ask (see Chapter 6).

Where your bike lives

“My bike situation dictates my housing situation.”

—Austin Horse, Brooklyn, NY

Wherever you live, you'll need to keep your bikes somewhere, and often the type of bicycle you ride will depend in part on your facilities at home. One advantage of a larger suburban property is you are likely to have extra space—maybe even an entire extra garage—for bike storage. Some imported city bicycles are built to withstand being stored out of doors in all weather. If you want to ride a cargo bike and it isn't built to live outside, you'll need to be able to store it on the ground floor, which isn't always possible in an urban apartment.

The simplest way to store your bike is to lean it against the wall. If you live in a very small space—or have nowhere to park your bike at work—a folding bike might be your best bet. Other bike storage solutions for small spaces

range from the brilliant to the bizarre. If your bike has a flat top tube, you can make or purchase a sort of shelf to hang on a wall, with two notches to hang the bike on horizontally and a handy space up top to drop your keys and whatever is in your pockets. If your bike is light enough to comfortably lift, you can hang it by the front wheel from a large, rubber coated hook (a few dollars at the hardware store) drilled into a beam in the ceiling. You can also buy a pre-made, expandable tower that clamps between your floor and ceiling, and can hold two bikes, one above the other.

What to wear

Your regular clothes

What you wear to bike should be comfortable and appropriate for what you're doing. If you're biking to the office, wear your office clothes. If you're biking to a class at the gym, wear gym clothes. If you're biking to a party, or to a job interview, or the grocery store, or out on a recreational ride around the country, you should be able to hop on your bike while dressed appropriately for each of these activities.

At the same time, a polyester blend fabric that keeps you suave and wrinkle-free during an air conditioned bus or car commute may turn into a sweaty, stinking prison on a short summer bike ride. The soles of your favorite walking shoes might be too wide to fit easily on your pedals. The seams on any pencil skirt are very much in danger of splitting.

In other cases, you'll likely find neglected items at the back of your closet that turn out to become bicycling staples. A pair of wool slacks and a wool sweater can keep you cozy and repel light rain in the fall and winter; your dress shoes with stiff soles that aren't comfortable to walk far in might just be perfect on the pedals.

Trousers

Trouser legs are in danger of getting caught in your chain. The classic response to this situation is to roll up your right pants leg before you ride. Creative options abound: you might just switch to more narrow-legged pants. Or you might prefer to put a strap around your ankle. Or you could leave your trousers alone and put a chain guard on your bicycle.

Skirts

If a short skirt is more voluminous or flared, it's in danger of flying up in the breeze as you ride. Wearing a pair of shorts underneath your skirt just for the bike trip is one way to avoid showing your underwear; another is to follow the current fashion of wearing leggings underneath your skirt. In the winter, wool stockings provide an excellent layer of warmth.

Skirts that are longer risk getting caught in your spokes or brakes, causing a crash. One way to avoid this hazard is to tie the extra fabric on your skirt in a knot or to reduce the flow of fabric with a large clip. Another is to install a skirt guard over the rear wheel.

On your feet

Shoes with a stiff sole will be the kindest to your feet. Sandals and flip flops are often looked askance at, but so long as you aren't racing around and you're careful not to let them flop off into your gears, you shouldn't have any problems.

High heeled shoes can actually be much easier to bike in than to walk in. The ball of your foot should rest on your pedal in any event, so the heel doesn't come into play until you need to stop, in which case it makes a nice stilt to keep you from having to climb in and out of your seat.

The practice of rolling up the right pant leg, and generally of wearing clothes that are not long enough to encounter your drive train, leads many an urban cyclist to discover the joys of knee socks.

On your head

A cycling cap isn't just a fashion statement, it's functional cycling headwear year-round. The brim keeps sun and rain out of your eyes. A heavyweight one with an earflap will keep you warm in the winter; a lightweight one absorbs sweat and protects your head from the sun in the summer and serves the vital function of keeping your hair from poking straight up through the holes in your helmet.

Layer up

You'll encounter changing temperatures, internally and externally, as you ride, depending on the terrain, the weather, and your effort. Because of this,

it's a good idea to dress in layers. In the summer, you may want to be wearing a sleeveless top for riding, but have a shirt or cardigan to put on as you enter an air-conditioned building and your body cools down. In the winter, it's better to have multiple thin layers that you can shed as you ride rather than a heavy coat that will turn into a sauna at the first hill. Arm and leg warmers may look like hipster fashions but are actually quite practical for bicycling, since you can quickly pull them up or push them down as needed. When you ride a bike, you dress less for the weather and more for maximum flexibility to meet the permutations you'll encounter.

Technical clothing

There's a lot of fancy technical clothing out there for riding. If you plan to ride more than 10 or 20 miles in a day, especially if you like to ride hard and fast, by all means get yourself a full on riding kit: padded shorts, a jersey with pockets in the back, lightweight windbreaker, knee and arm warmers, clip-in shoes and moisture wicking socks. If you like the look and feel of technical bicycle gear and if you find it functional for your riding style, there is no reason not to wear it.

But if you'll be mainly riding for daily transportation at a leisurely pace, this type of gear is rarely necessary. There are exceptions, and many technical items, such as rain gear, have their place in an everyday wardrobe, particularly in inclement weather. But there is no need to invest in an expensive new wardrobe in order to ride a bicycle. See what your habits are and choose your purchases wisely.

Padded bike shorts are a popular technical item. Keep in mind that, depending on your body and your bike, padding sometimes pinches and will not necessarily increase your comfort; your first step before resorting to padded shorts should be adjusting your saddle and handlebars. If you plan to put in many hours on the saddle, try shorts with thinner padding first before working your way up to more. If you wear bike shorts, you do not need to wear underwear underneath. Remove them as soon as possible and wash them in between every time you wear them.

Dirt and grease

One of the common clothing pitfalls of bicycling is dirt. There are two main kinds. One is dirt from the road, your tires, and the sooty stuff that wears off of your brake pads. The second is dirt-infused grease from your chain.

Road dirt should come off your clothes handily in the wash. Chain grease is another story. If you have a stubborn chain-ring tattoo on your favorite trousers, soak the mark with a citrus-based solvent, let it seep into the fibers for several hours, and then wash the item as normal.

Chain grease on your clothes can partially be avoided simply by keeping your bike chain clean and well lubed. Dirt from your brakes and tires can likewise be avoided by regularly cleaning your wheel rims with a dry cloth. If it's important to you to keep grease off your hands, keep a pair of rubber gloves with your bike tools and wear them whenever you need to clean or work on your bike.

You're most prone to getting dirt and grease on your hands and clothes while lifting your bicycle, for instance up stairs or onto the rack on the bus. Avoid this by learning to lift your bike gracefully, rather than wrestling with it. One trick is to always stand on the left side of the bicycle while you lift it, away from the drive train. The rest comes with practice.

Riding in all weather

You can ride a bike through most any weather. These tips will help. Listen to your body and your instincts at all times, especially if it is very cold or hot. And it's essential, as with any other form of transportation, to have a backup plan for extremely inclement weather.

Rain

A light rain, particularly in the summer, can be lovely to bike through. Heavy rain storms can also sometimes be fun, though people tend to drive very badly during them.

In cold, wet weather, your main concern should be staying warm rather than staying dry. Any time you wear a raincoat and make any kind of effort on your bicycle, you will end up sweating, and so the trade off between internal and external moisture must be balanced.

If it is just drizzling, you may be best off with no raincoat at all. If it is warm out, lightweight synthetic clothing dries quickly, leaving you more comfortable than if you were sweltering in an unseasonable raincoat. If it is cooler out, a thick woven outer layer like a tightly woven coat or a wool sweater is often your best measure; it will shed water and keep you warm even when it is wet.

Real rain, on the other hand, is when technical bike clothing shows its worth. If you own no other piece of technical gear, a bicycle-specific rainjacket is the item to invest in. These are typically made of breathable, waterproof fabric and are equipped with a longer flap in the back, ensuring the small of your back stays dry as you lean over your handlebars. Most have pockets, and many sport zippered ventilation holes in the armpits.

Technical rain pants are another item that many city riders swear by. You can find very cheap, non-breathable ones at military surplus stores, or invest a bit more for breathable fabric and a fascinating array of permutations of zippers and closures. Look for ones that fit comfortably over your regular trousers and that can be taken on and off with relative ease when you are, for instance, standing by the side of the road with a storm approaching quickly.

One of the best and cheapest kinds of outerwear is the rain poncho. One size usually fits all, and attaching thumb loops means the poncho serves as a tent to keep your lower body and feet dry while you ride. If you go this route, you'll really need fenders; rubber boots and/or rain pants are a bonus. The downside of a poncho is quickly discovered in strong winds.

Fenders are essential in wet weather. Water from the sky may get you damp, but the water that your tires throw up from the pavement will cover you with grime. It's possible to buy small, clip-on fenders that will offer some minimal protection, but you'll really be better off with a set of full fenders that wrap partly around your tire and extend nearly to the ground. This is for your own sake as well as the sake of anyone who happens to be riding behind you on a wet day; inadequate fenders will direct a spray of dirty water directly into their face.

Wool socks are especially amazing in the cold and damp, as are any kind of “performance” socks. Neither of these is particularly comfortable when wet, but both are far preferable to cotton in keeping your feet warm.

In wet weather wear shoes with plenty of grip so they don’t slip off your pedals. Over your shoes, technical fabric rain booties are nice to keep your feet dry; rubber boots will do as well, though you’ll need to prevent water running into them from above.

As for keeping the rain out of your eyes, a visor on your helmet will help marginally; a cycling cap with a brim will help even more. You can also purchase a waterproof helmet cover to keep your whole head somewhat more dry and warm. Some rainy weather riders prefer contact lenses over spattered and fogged glasses.

When it rains it’s often darker than normal, and it’s a good idea to have lights on your bike at these times as well as to ride extra cautiously.

A note about size: Technical bike gear, including rainwear, is rarely made in women’s sizes above 14. You’ll find a few things out there, but the options are limited. If you have trouble finding rain gear that fits you, a poncho is one option; or you may prefer to swing the opposite direction and opt for a fashionable wool or waxed burlap coat.

Cold

In cold weather, you have two factors to consider. On the one hand, even if you start out cold, your body will warm up as you ride. But on the other hand, riding will cause the air to rush past you—even when it isn’t windy—making you colder, especially your hands, face, and feet.

Most warm winter clothing focuses on keeping your core warm—a giant down jacket, for instance. But your core is what heats up the fastest when you’re on a bike. Get too warm, and you’ll find your sweat cooling you off too fast when you’re going down hills or once you stop.

Unless you are riding in below-freezing temperatures, ditch the parka and layer up. This might entail a lighter jacket over a couple of sweaters, and long underwear underneath all your clothes. You'll also want more, warmer coverage of your extremities, for instance double socks, gloves, scarves, and hats. Military surplus stores are excellent places to get affordable, durable cold weather clothes for bicycling.

A regular scarf can come loose while you ride or produce openings for the wind to get through; try a neck tube or balaclava instead.

When dressing to go out on a cold day, pay extra attention to the gaps between items of clothing that let cold in when you're on the bike: your face, your neck, between your gloves and sleeves, at your ankles, and the stripe on your lower back between your waistband the bottom of your shirt.

Snow and ice

Cycling in ice and snow has its own skill set (and equipment recommendations). People who ride in snowy climates often keep separate bicycles that are set up for winter riding.

For some kinds of snow, knobby mountain bike tires may help you gain traction. But on ice or hard packed snow, smooth tires are better as they provide more surface area to grip the slippery road. In slippery conditions, lowering your tire pressure to its minimum may also help increase the amount of gripping surface on your tires.

Heat

There are two schools of thought about bicycling in very hot weather. One is to wear as little as possible to stay cool; another is to cover up with lightweight fabric to avoid sunburn. Cotton is more comfortable and breathable, and technical lightweight wool has its devotees. Whatever you wear, light colors will absorb less heat, and patterned fabrics will show less sweat.

Drink a lot of water when you're biking in hot weather. Several cups of water before you leave the house will get you started, and then drink more as you ride. Drenching your cap and shirt in water before a ride in the scorching heat can help your body keep cool for longer.

Plan your day to stay cool. Between 6 and 8am is the coolest time of day; peak temperatures are reached between 4 and 6pm, right during the evening commute.

Also, it's counterintuitive, but staying out of the air conditioning will help your body acclimate to the heat. It takes about two weeks to really get used to hot weather, and every blast of AC resets the clock.

Whatever you do, take it slow and easy when it's hot. If you start to feel sick from the sun, stop riding immediately, drink water, and go somewhere cool.. And wear a lot of sunscreen; don't forget that exposed stripe on your lower back.

Taking care of your body

Bicycling doesn't have to be an athletic endeavor, but it is a physical activity. When you begin to bike regularly, you may find you simply need to eat more throughout the day to avoid the dreaded blood sugar crash. Making sure some of those extra calories are from fresh, whole foods will give you more energy and strength for riding. If you sweat a lot, be sure you are consuming enough salt.

Stretch and strengthen

Muscles get tight when you use them. Your body will thank you if you stretch regularly, even if just for a couple of minutes before or after a ride or at the end of your day. Yoga is especially good for staying limber and strong, but the basic stretches you learned in gym class as a kid will serve just as well. Your hamstrings, quads, and hips in particular will thank you for the extra attention.

Bicycling gives you strong legs, but it doesn't do much for your upper body strength or your core. And any form of exercise that builds abdominal strength will help you get up those hills. Improving your overall fitness will make bicycling continually easier and more fun, so go for it.

Finally, riding a bike should never hurt. If you're in pain, something's wrong. You might need to start stretching a particular muscle, tweak the fit of your bike, adjust your saddle, get your cargo off your back, try a new kind

of handlebars, or even see a doctor. Regardless, don't just push through the pain; research it and consult an expert.

Crotch health

A few sensational articles have been published over the years claiming that cycling can harm your sexual health. And if you ride for many hundreds of miles each month you are indeed likely to suffer in the crotch department. If you are a more casual rider, however, you will likely only need to worry about your fertility and sensation when and if you actually experience discomfort.

When you first start riding, or when you switch to a new saddle, the bones in your pelvis will be sore for a few days. This is normal; if it is deeply painful, or doesn't fade in a week, adjust your saddle or switch to a different one.

To stay comfortable in the long term, it's important that your seat fit and your bicycle be well adjusted for your body. This is not just a matter of your saddle adjustment; even a centimeter's difference in the angle of your handlebars can affect the comfort of your seat. For more on adjusting your seat, see Chapter 3.

Experiment with different clothes and equipment to make sure you are not over- or under-padding either your bicycle seat or your crotch. Some people can ride happily while wearing anything and on any saddle; others are most comfortable with lots of padding, others with thin padding, others with none at all. Some people find that any clothes with seams in the crotch, particularly jeans, are unbearable. If you experience lasting numbness or pain, see a doctor. You may need to switch to a more upright bike or recumbent.

Also in the crotch department, it's important to be extra attentive to hygiene. This is especially true if you wear synthetic underwear or technical bike shorts, which are ideal bacterial and yeast breeding grounds. Keep your crotch area clean. If you do go for long rides in bike shorts (or ride any distance in warm weather with any synthetic fabric next to your skin), keeping very clean and using a chamois cream (it's pronounced "shammy") can help prevent painful chafing and saddle sores. After a sweaty ride, products like Bag Balm can relieve chapping.

Menstruation

Many women find that menstruation does not affect their bicycling routine in any way. Some enjoy reduced cramps and premenstrual symptoms as a result of bicycling and generally staying physically active. Other women find that their period brings a low ebb in energy and such an increase in physical and mental discomfort such that they prefer taking a break from bicycling for a day or two.

As for dealing with the actual flow, this tends to primarily be a problem for those who have heavy bleeding. Some women avoid using tampons when they bike, finding them uncomfortable and less effective. A popular alternative is the reusable cup. Multiple varieties are on the market, made of either rubber or silicone.

Pads pose a different issue. Thicker disposable pads tend to bunch up uncomfortably. The extra thin kinds work better but suffer wear and tear in the saddle and will need to be changed often. Cloth pads are not usually ideal; they are either too thick, or they shift around while you ride. Some varieties are secured with a snap, but this is not well placed for comfort on a bicycle seat. Some types of thinner cotton pads with an impermeable backing and a non-snap closure exist; they are harder to find but are popular among women who ride.

Mixing it up: Other ways to get around by bike

When you choose to hop on a bicycle, that doesn't mean that bicycling is the only way you'll travel again, ever. Even the most hardcore transportation cyclists mix things up from time to time.

Public Transportation

Public transportation and bicycling can be a winning combination. Transit lines are fixed, meaning they're only convenient if you live near one and then work near the other end of it. A bicycle can help bridge the gap.

In many places, you can bring your bike onto the bus or train, though sometimes this is only allowed during limited hours, or if there is room on board in the designated bicycle spaces.

If bringing your bike on the train or bus is a problem, you have several options. On the cheaper end of the spectrum is getting a beat up but ride-able bike and locking it up out in the elements at your transit stop; some people keep a second beater bike at the other end of the line.

Another option is to invest in a folding bicycle. These bikes fold down small enough to bring with you on public transportation without any trouble, and nearly all transit systems allow them. The best quality ones are quite comfortable and fast to ride and some even have racks so that you don't need to wear your things on your back.

Cars

You might curse the existence of cars while you're trying to share a busy road with them. But most places in North America are built for cars, and doing without one entirely isn't for everyone. By all means, test out all your options, but chances are you have no real choice but to drive some or even most of the time. Many a rural or suburban person who works in a nearby city has discovered they can get their bike commute in and save money on parking by driving part of the way, parking in a lot or a residential street, and riding the rest of the way in to work.

The simplest way to carry your bicycle in a car is in the trunk. Remove the wheels, rest the frame in the trunk or the back seat with the gears facing up, and place the wheels in afterwards. If removing the wheels is difficult or you don't have time, your best bet is to slide the bike in with the back wheel first, drive train facing up, and leave the front wheel and handlebars hanging out the back of the trunk, rotated at more or less 90 degrees. Bring the trunk lid down gently onto the frame (not on the wheel) and use a bungee cord, a rope, or even your shoelaces to secure the lid snugly to the body of the car so it doesn't bounce open and closed while you drive.

If you find you are often driving with your bicycle, it may be worthwhile to purchase a rack. I recommend bicycle racks that attach to the back of your car rather than the top. It is easier to get the bikes on and off, and you can easily remove the rack when you aren't using it. Many different kinds of racks are available, and it is not difficult to find an affordable used rack in

good condition. If you leave your bicycles unattended on either kind of rack, be sure to lock them securely, preferably to the rack itself.

Long distance bike travel

Traveling long distances? It can still be done with a bicycle. Bringing a bike on an airplane is cumbersome and expensive. Some airports encourage bicycle connections by providing safe, well-signed routes and even tools for disassembling and boxing up your bike. Others will actively discourage you from riding to the airport.

Most long distance trains and buses allow bicycles; some require you to box your bike and others don't. Triple-check the rules before you go and consider bringing a printout with you; often there are different requirements and fees for different lines and stations, and station staff are not always on the same page. If you have a folding bicycle, your long-distance travel connections on any mode will be greatly eased.

Or you can just skip the connections and ride the whole way. Bicycle touring is enjoying a renaissance in North America, with thousands of people each year pedaling across the country, around the world, or just on weekend trips near their homes. Bike touring is a great way to have an active, affordable vacation, meet the friendliest people, and see the best of every place.

3

Bicycle adoption, care and feeding

For years, I kept only one bicycle at a time. First it was a series of vintage cruisers, then a mountain bike converted to city use, then a fast, custom road bike, and finally that mountain bike again, converted to a longtail cargo bike.

I have loved each of these bikes more than I can say and ridden each of them many hundreds of miles. But there have also been times each of these bikes filled me with frustration and stress. I've been guilty of what I now see as a common mistake: demanding that one single bicycle be and do everything.

The custom road bike was perhaps the most intense example. It was expensive and it was made for me, and I felt some internal pressure to have only positive experiences on it. I loved going fast, but whenever I took it out, I needed to carry a lot of heavy things. The bike was made to fly, not haul, and the heavier the load, the more unbalanced I felt.

It stopped being fun to ride, so I lent it to a friend and got my cargo bike. It was all bliss for a while—I could carry anything at all!—but soon enough the frustration was back. When I was riding with others, I couldn't keep up. A quick trip across town took 15 minutes longer than it felt like it should. The

joy of being able to carry anything at all under my own power gave way to the irritation of crawling along even when unencumbered.

So I brought home the fast bike again, took the racks off, and vowed to never again push a bicycle to be something that it wasn't. Now, when I want to carry anything beyond snacks and my wallet, or if I just feel like sitting upright and tootling along slowly, I ride the cargo bike. If I want the thrill of going fast, I put all my errands aside and treat myself to a spin on the road bike.

There are times when one bike is in the shop, and I ride the other for every purpose, and that's liberating in its own way, remembering how far you can push a the limits of what any bicycle can do. But having two bikes works well for me—so well that I'm daydreaming about getting a third, an in-betweenener, light and strong enough to carry me over mountains with a sleeping bag and tent on the back. Where to keep it, however, is another question entirely.

Complicated bikes for a simple life.

Bicycling can be as simple or as complicated as you want it to be. Much of that depends on your choice of bike.

If you walk into a bike shop and ask for the simplest bicycle they have, it's likely they'll direct you to the stripped-down, fast steeds with no gears or brakes, much less a rack or fenders. These bikes are fun to ride, but they can end up complicating your life on a daily, practical level, requiring extra creativity and effort to manage even simple tasks like grocery getting and riding in the rain.

If you want to keep things truly easy and change your daily habits and wardrobe as little as possible, consider going for a more complicated bicycle. A bike with some combination of sturdy, step-through frame, built in lights, fenders, a chain guard, a rack, and flat-resistant tires will simplify your transition to bicycling immensely.

For some, simplicity means taking your bicycle to a shop for all routine and special maintenance, and getting components that need as little work as possible. There's something to be said for complexity, too, though, and you

may find, as you ride more, that you enjoy the learning and the trial and error of tailoring your bicycle to fit your body and lifestyle; you may even find it more convenient to do yourself. Whichever your preference, this chapter gives you some basic resources to whet your curiosity and get you started.

Choosing a bicycle.

What kind of bike do you need? The short answer is: Any kind. It doesn't matter, so long as you can ride it.

The longer answer is: You need a bike that fits you, that can be kept in good repair, that is suited to your needs and the local terrain and weather, and that feels good and is fun to ride.

Within those parameters, you'll find multiple options, sometimes too many. Keep in mind that there is no single ideal bicycle. Choosing a bike is a matter of figuring out your needs and then finding a bike that will suit them reasonably well.

If you have a search ahead of you, here are some tips for choosing your bike. If you already are happily paired with a bicycle, skip ahead to the maintenance section in the second part of this chapter.

You don't need to marry your bicycle

“Don't try too hard to get the right bike from the start. Tastes change with time, experience and fashion” —Erik Sandblom, Göteborg, Sweden

Don't assume you need to have the ideal bike before you start riding. Waiting for the perfect bike to come along is a great recipe for never beginning to ride at all. When you do find one that fits all your criteria it is likely to be a hefty investment. If this expensive new bicycle turns out to not be a good fit for your body or your lifestyle, you're bound to feel frustration instead of joy when you ride it.

Avoid this fate by shopping around with the goal of honing in on your needs. If you already have a bike that you aren't thrilled with, think about what could make it more fun to ride and make incremental changes one by one with that

Questions to ask yourself

While shopping for a bicycle, think about the following questions. Write down any conclusions that come up and bring the list to the bike shop with you, or keep it next to you as you sift through used bike listings online.

- Do you want to ride fast or slowly?
- How far will you be riding, and how often?
- Are there a lot of hills where you will be riding?
- What kinds of roads will you be riding on—smooth asphalt, rutted streets, or gravel/dirt roads? Will you spend a lot of time on busy streets?
- What do you want the bike to look like? It's okay to care about style and color!
- Will you be carrying stuff on racks on your bike? Will you use a trailer with it? Will you carry children?
- Will you need to carry your bike up and down stairs?
- Where will you park?
- How much do you want to spend?

Even if you do not yet have answers to all of these questions, considering them will better equip you to begin shopping for a bike that meets your needs.

end in mind. If you're totally new to riding, one way to get started is to borrow a bike from a friend or family member who is about your height. Even just renting a bike for an afternoon or test riding a different style of bike at your local bike shop every weekend will help you get a sense of what you like—and, just as important, what you don't like.

Then again, if you know you want to ride, there's something to be said for just jumping into the deep end and getting yourself a bike, any bike. Why wait? Bikes have good resale value, and the bike that frustrates you daily is likely someone else's dream ride. If your shiny new ride doesn't work out, you can sell it and get something else.

You don't have to marry your bike. If your first bike ends up not being right for you, there is no shame in that. Adjust it until it fits your needs as well as it's going to, and then take what you've learned and move on. For most everyday riders, life is a never-ending quest for the perfect bike. There's joy to be found in that, too.

New bikes

New bikes have advantages and disadvantages. They are in one sense

easier to shop for, because they are standardized; you will not be faced with a multitude of individual quirks and component choices. A new, low-end hybrid commuter bike from your local bike shop is an easy and affordable entry into the world of cycling, and can be resold for a reasonable sum when you are ready to move on.

Low end bikes are not to be confused with their even cheaper cousins the big box store bikes, which are as a rule not built to withstand regular transportation use. If you are unsure that you want to ride at all, and only want to spend a hundred dollars or so testing the waters, a city bicycle from a big box store might be a good temporary solution. Keep in mind that these bikes do not have any resale value, and there is a danger that your bike may be quite rickety right out of the box. If you do choose this avenue, plan to replace the bike within six months.

Working with a bike shop

You can save money by buying a bike online, but if you'll be riding regularly it's worth spending a little extra in order to develop a relationship with your local bike shop.

That way, when your new bike hurts your wrists or develops a rattle in the first week, you'll have ready help adjusting it to fit and making sure you are happy. You'll always have a place to go with questions, fit help, and repair needs, and when you're ready to buy another bike you'll have the advantage of a guide to the process who is already familiar with your needs.

If there are multiple bike shops in your area, it's a good idea to shop around. You'll want a place you feel comfortable and where they have the things and services you need in your price range. If you have a good interaction with a particular employee, it's fine to ask for them specifically when you go back.

Bike shops can be intimidating to the uninitiated—but they don't have to be. To have a positive experience, there are two rules of thumb:

1. Be prepared. Go in with as clear an idea as possible of what you need, whether this is the exact part and model number or “something has been squeaking since the bike fell over last week.” Even if you don't know where to

begin with researching your needs, think them through as thoroughly as you can. Your bicycle dreams will evolve along with your knowledge; for many, it's a lifelong process.

2. Ask questions. If the salesperson or mechanic says something you don't understand, ask them to clarify. If you do happen upon someone who isn't willing to answer your questions, who doesn't listen, or who is trying to push you to buy a racing bike when you are searching for an everyday ride, find another employee to work with or go to a different shop.

3. Test ride, test ride, test ride. Never purchase a bicycle that you have not first taken for a spin and found to be comfortable.

Used bikes

“If you are concerned you may eventually be dissatisfied with new bike, a used bike will be easier to sell for the purchase price.”

—Austin Horse, NYC

A well cared-for used bike that has already lasted many miles will likely last many miles more. As with so many manufactured goods, older bikes and parts are better-made than many of their newer counterparts.

Steel frames are heavier, but will last for decades. Aluminum and carbon are less durable and can't be repaired. Before you pay for the used bike you've chosen, run your eyes over every centimeter of the frame. Look for cracks or signs of strain.

Another benefit of a used bike is that vintage bikes are often better-suited for city riding. If three speeds are enough for your purposes, then a vintage bike with a good condition, possibly restored, internally-gearped hub, will need less maintenance and result in fewer surprises and breakdowns.

Used bikes, unless you buy them from a shop that restores them lovingly, may need some initial investment beyond the purchase price. If you purchase a bike that has been sitting, lonely, in someone's garage for several years, you will likely need to replace the rubber bits on it—tires and brakes—as well as the shifting and brake cables. You may also find that other parts of the bike,

like the chain and gears, are worn out and need replacing. Test the bottom bracket by holding a pedal in each hand and wiggling them to make sure they are sitting tightly in the frame. You may end up spending as much as two or three hundred dollars extra—but this can still be an excellent bargain for a bike that is a joy to ride and will last you for years.

It's also worth noting that you may be able to find yourself a used bike for free or very cheap at a community bike shop. See the maintenance section further down in this chapter.

Types of bicycles

The variety of types of bicycle out there is bewildering. Don't worry about these categories too much; the lines between them can be blurry and defined more by industry marketing than by actual features. What matters is that you have a bike that fits you, that works for you and that you enjoy riding.

City bikes

Just what is a city bike? There is no single answer. In essence it is a bike suited to everyday urban cycling, as opposed to short jaunts on the boardwalk, long, recreational rides in the countryside or racing on tracks or mountain trails.

A classic European-style city bike has full fenders, a rear rack, and perhaps a front basket. It might have a chain guard and perhaps it also has a skirt guard: a casing over the rear wheel that keeps your skirt or coattails out of the spokes.

In North America, bikes adapted for city riding tend to look a little different from this European ideal. They may be sold as a Dutch bike, a cruiser, or a hybrid. They are often road bikes fitted out with handlebars that allow a more upright posture, racks, fenders, wide tires for a more stable ride, and perhaps built-in lights. Almost any bicycle can become a city bike; the permutations and possibilities are endless.

A note on step through bikes

When you think of a bicycle, the image that first comes to mind is likely of a diamond frame road bike, with a straight top tube between the seatpost and the handlebars.

Diamond frames tend to be thought of as men's or boys' bikes. Step through frames, which lack the straight top tube, have become branded in the U.S. as girls' or women's bikes. They were indeed invented for women in the 1800s, meant to accommodate riding in long, heavy skirts and petticoats. Clothing norms have changed, but the association of step through bikes with women and diamond frame bikes with men remains.

There is no reason today for people to choose a frame style based on gender. People who want to ride fast tend to prefer diamond frames, while step through frames (you might also hear some varieties called loop frames or mixtes) are ideal for people of any gender who carry children or cargo on their rear rack, interfering with their ability to swing their leg over. Step-through riders also include people with hip injuries and anyone who simply wants the ease and freedom from wardrobe malfunctions of being able to simply step in front of their handlebars and ride.

Dutch bikes

If you ride short distances, prefer to wear fashionable clothes on your bike, don't have many steep hills to traverse, like to take it slow and smell the roses, and don't want to ever to do any maintenance, then an upright Dutch-style bike with just a few gears may be right for you.



Imported Dutch bicycles are still rare in the U.S. but they are gaining in popularity. They are often but not always step-through frames. They allow you to have a bolt upright riding posture as though you were sitting on a chair or riding a horse. They tend to be heavy, sturdy, and usually do not come with very many gears, since most of them are still imported from the pancake flat Netherlands. They also tend to come equipped with components suitable for city riding including, built in fenders, lights, chain guard, and a dress or coat guard. They are an expensive option in the U.S. but that may change and some cheaper imitators are entering the market.

Road bikes

If you are always on the go, need to hop between commitments all over town, live in a walk-up apartment, aim to replace your gym membership with your daily riding, plan to take your bike camping someday, and need to be able to flip your bike over and fix it on the fly, a light, fast road bike might be for you.



Road bikes are diamond frame bikes, and they typically come with s-curved “drop” handlebars that require you to bend forward to ride. They can be excellent transportation bikes, especially if you prefer to ride fast. When shopping for a road bike, consider that you may want to attach rear fenders and a rear rack. Not all road bikes have the proper attachments that make this process straightforward. Also, many people enjoy the bent-double, aggressive riding posture of a road bike, but it is not practical or comfortable for everyone. If you want a road bike but prefer to sit more upright, consider tilting your handlebars up higher, adding a taller stem, or swapping out your bars, brakes, and shifters entirely.

Mountain bikes

Mountain bikes were at one time a fashionable choice for city riding, and the budget used bike shopper is likely to encounter quite a few of them. If you are less than 5’3” tall, the majority of suitable used bikes you’ll find will likely be mountain bikes with 26” wheels.



Mountain bikes of the rigid variety can serve well enough as city bikes. They are, however, designed for riding on dirt and gravel roads and trails and single track in the wild, often up and down steep hills. Mountain bikes typically come with knobby tires, which you will likely want to swap out for smoother and narrower ones to improve your speed on city streets. Most

mountain bikes come with shocks; you may not want the kind with shocks in both the front and back (“full suspension”). If the shocks are only in the front fork, that can suit for a pothole-ridden commute, but will slow you down; many frames will allow you to swap out the front fork for a stiffer one without shocks.

Mountain bike frame geometry is different from road bikes, and some people find them more comfortable. They generally come with straight-across handlebars rather than the drop bars of road bikes; you’ll be more upright than when riding a road bike, but likely still positioned for more speed than a cruiser, Dutch bike, or hybrid. You may run into difficulties attaching racks and fenders to many mountain bikes. Most come with attachment points, but for some you will need to jury rig a way to attach them, which is often not ideal, particularly for fenders.

Touring

A touring bike is similar to a road bike, but heavier and sturdier, and a frame design that makes them more comfortable for long, straight hauls. They tend to be suitably geared for hilly rides, and have the advantages of built-in attachment points for both front and rear racks. They will also take fenders without a struggle, and often have room for extra water bottle cages. All of these features can make them good everyday bikes.

Hybrids

Hybrids are what athletically oriented bike shops tend to keep in stock as “commuters.” New hybrids are in the low to medium price range, and they are not necessarily a bad choice for your transportation needs. Hybrids are, as you’d suspect, something in between a road bike and a mountain bike. A hybrid offers mountain-bike style handlebars and brakes, lots of gears, and a semi-upright posture. Some come with a shock-absorbing seat post, which is more gimmicky than useful, but might be nice if the roads you ride on are in bad repair. They can be comfortably ridden for many miles at a time, though they will not carry you as fast as a road bike nor take you comfortably off-road the way a mountain bike can. Hybrid bikes can be very serviceable commuting bikes or bikes for weekend recreation, but once you end up wanting to go faster, ride longer distances, or have more of the trappings of a city bike, it’ll be time to move on.

Cruisers

There are two varieties of bicycle called cruisers, though they don't share much in common.

Modern cruisers are essentially beach bikes. They feature wide tires, a single speed, kick brakes (you pedal backwards to stop the bike), a wide, soft seat, and a frame geometry that puts you in a laid back posture. These bikes tend to have snazzy paint jobs and are excellent for a mellow, flat ride down the boardwalk or the bike trail. They generally do not come with racks, but you can easily put a front basket on the handlebars.

Vintage cruisers generally feature step-through frames, an upright sitting posture, three speeds, and heavy steel frames. They are not meant to travel quickly or far, but they are better suited to everyday urban riding than their modern counterparts. These usually do not come with racks, but they are likely to have fenders and a chain guard, and are practically begging to be outfitted with a front basket.

Comfort

So-called comfort bikes are marketed to people who fear that bicycling might not be for them. Unfortunately, this type of bike often successfully convinces them of that. Comfort bikes resemble hybrids, but with an even more upright posture, and swept back handlebars. They come with exaggeratedly wide, cushioned seats, and most are equipped with shock-absorbing seat posts and forks, which increases the amount of effort required to ride. These bikes are not meant to be ridden any great distance or speed or while carrying cargo of any kind.

“Women’s” bikes

Occasionally a major bicycle manufacturer will decide to test the market for women bicycle buyers. You can spot these bikes a mile away by their easter egg color paint schemes and floral decals. Their technical design is based on several assumptions about fit, including that women are smaller in stature than men, have narrower shoulders, smaller hands and feet, and have proportionally longer legs and shorter torsos. These assumptions are by no means universally accurate, which is one reason why there are

plenty of long-torsoed women and narrow-shouldered men out there riding ill fitting bicycles. Regardless, some shops will steer any female who walks through the door directly to their selection of women-specific bikes. If your dimensions reflect the industry's equations, by all means, take a test ride—no matter what your gender.

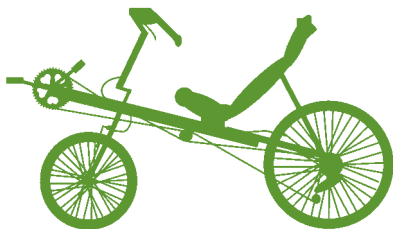
Tricycles

People who are seeking extra balance and stability are often drawn to tricycles. But trikes are not necessarily easier to ride than two-wheelers. They are prone to tipping onto two wheels while you turn, and can be more difficult to ride in a straight line on a road with any sideways slope. Nonetheless, some people swear by tricycles, with recumbent trikes—which you can go quite fast on—having particularly fervent devotees.

The trick to keeping your tricycle upright is to lean in the opposite direction as you would on a two-wheeler—away from the direction of your turn, rather than into it.

Recumbents

Recumbent bicycles, or 'bents, are something you either love or hate. On these bikes (or trikes), you sit in a little chair, leaning backwards. Your feet are on pedals in front of you, and your hands control the steering and brakes from your sides.



Recumbents are the domain of long distance riders and by the subset of the cycling population who cannot comfortably adjust to regular bike saddles. 'Bent riders are fans of being able to put their foot on the ground without dismounting at stops, as well as the more laid back vantage point these bikes allow. There is quite a bit of fierce debate over the merits of recumbent riding; you're either a recumbent person or you aren't, it seems, and the only way to find out is to give it a try.

Folders

Folding bicycles are beloved by frequent travelers, tiny apartment dwellers, and people who combine bicycling with public transportation. The best folding bikes ride like full-sized bikes and have a small but wide range of gears. Some even have racks and lights built in. A wide range of options are available in terms of sturdiness, ease of folding, ride comfort, and cost.



Cargo bikes

“Spend big, expect lots.” —Joe Biel, Portland, Oregon

Cargo bikes tend to be heavy, but they can also carry more weight more comfortably. If you need more stuff on a daily basis than can be comfortably hauled on your regular bike, and if speed is not important to you, a cargo bike might be the right choice. All cargo bikes will handle very differently with and without a load, which is worth keeping in mind when you are test riding them. Chapter 5 has a more in-depth section on choosing and using cargo bikes, much of which is applicable even if you are not carrying children.

Longtails

The longtail is the quintessential U.S. cargo bike. Nearly as narrow as a regular bicycle, these bike frames extend several feet longer in the back, with the rear wheel moved back as well. The result is that you can carry larger items than on a regular bike, and keep them centered over the rear wheel in side panniers. The bike’s center of gravity is lower, allowing more stability overall.

Longtails were invented for the purpose of carrying two hundred pounds of green coffee beans along a mountainous dirt trail in Central America, or to carry sacks of grain down rutted roads in Rwanda. It turns

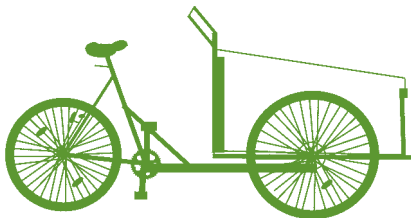


out they work just as well for hauling a set of kitchen chairs, a month’s worth of groceries, or two preadolescent children around a hilly U.S. city. They have been embraced as one of the most practical, fast, lightweight, and affordable cargo bike options available.

The variety of longtail options on the market is increasing rapidly. Xtracycle, the original company to introduce them, also makes a kit that can be used to convert your existing bicycle into a longtail. Whatever option you choose, a full-on diamond frame with a straight top tube is not recommended, especially if you’ll be carrying anything on the top deck of the longtail that might make it difficult to swing your leg over.

Frontloaders

Frontloader cargo bicycles are a different kind of bike altogether. They are a staple in the bicycle-friendly cities of Northern Europe. Recent years have seen a growing interest in them in the United States, particularly among families. The kind you are most likely to see in the U.S. is the “bakfiets” (pronounced *bock-feets*; the plural is “bakfietsen”), named for its signature wooden box. These bikes are stable, but they are heavy. They take some upper body strength to ride, and handle differently than regular bicycles.



There are other front loaders on the market that are lighter and feel more like riding a regular bike, though their cargo compartments are not as sturdy. Some front-loading cargo tricycles can be found as well, including models that are made in North America.

Here are a few bike fit basics to keep in mind:

- When you sit on the saddle and hold the handlebars, with your feet horizontally even with each other on the pedals, your arms should be parallel to the angle of your thighs.
- Your hands should rest about shoulder width apart.
- You must be able to reach your brakes comfortably at all times.
- Your weight should never be on your arms.
- Your seat should be high enough that your foot is flat while your leg is nearly straight. It should not be so high that your legs are overextended or your hips rock side to side when you ride.
- The ball of your foot should rest on the center of the pedal.
- When you're standing over a diamond-frame bike with your feet on the ground, there should be at least a couple of inches between the top tube and your crotch.

Bike fit

As a beginner, you don't need to know too much about bike fit. If you can easily reach both the pedals and the brakes and it doesn't hurt to ride, you're good to go. Have fun!

Most bike shop employees are trained in the basics of fitting and can help you choose a bike that is the right height and length for you. After that, adjusting the saddle position and handlebar tilt are often all that's needed to make your bike work. The trick to adjusting your bike fit is to do one type of adjustment at a time and only make incremental changes. Each centimeter can make a huge difference in the way your bike feels.

Professional bike fitting

If you end up riding many miles at a time, or racing, you may find you want to fine tune the way your bike fits you. There's an art to this, and professional fitters exist who will, for a price, measure your dimensions and abilities with lasers and computers and adjust your bike and its components to fit you, down to the millimeter.

If you are having trouble finding a bicycle that feels comfortable, or if you have a body that the bike industry does not consider "standard," a professional fit is

something to consider. A trained fitter will help you learn more about your body, your preferences, and what options are out there.

A note on custom, handmade bicycles

The next step up from a professional bike fit is having a bike made specifically to fit you.

There is a growing industry in the U.S. of custom, handmade bicycles, crafted and fit specifically to your body and needs. These bikes have the advantages of being one of a kind works of art as well as being made and built up with components to your exact specifications. They also have the benefit of being manufactured locally. As a result of these factors, custom bicycles cost thousands of dollars.

An investment in a handmade bicycle will have the best results when you have a very specific and technically detailed idea of what you want from a bike. With custom bikes, you will get exactly what you ask for, and as a beginner you may not yet have the strongest sense of your exact needs. Once you are confident in your ability to choose and adjust an off-the-shelf bike to suit you, you'll be all the more ready to work with a frame builder to create the custom bicycle that will live up to all your wildest, and highly developed, fantasies.

Bikes for all sizes

Sadly, fat prejudice does exist in the bike industry. But there's no need to let this stop you. When bike shopping, it's extra important to find a shop where you feel comfortable and are treated with respect. If you run into problems, bring your business elsewhere.

Many bike shop employees will try to steer bigger-bodied customers towards hybrids. That might be what you want—a slower, slightly more upright ride—but it might not. If you're concerned about a bike being sturdy, look specifically at bikes made for utilitarian city riding, mountain bikes, and touring bikes—they're built to get you up hills and take a beating.

Most bigger-bodied folks won't need a special bike or components. The weakest point on a bicycle is often the rear wheel; if you carry a lot of weight, you may need to eventually get a stronger one.

Bikes for all abilities

Bikes are a flexible medium, and can be adjusted to suit nearly every need. For instance, while on a cross-country bike tour, a friend broke her right wrist. Instead of calling it quits, she had a local shop modify her bicycle so that she could operate both sets of brakes and shifters entirely with her left hand.

A growing array of options exists for “adaptive cycling”—bicycle designs and styles that make human-powered transportation accessible to people with a wide range of disabilities, injuries, and specific needs. The variations out there are as brilliant and creative, as simple and complex as the range of human needs and abilities.

If you have impaired vision, many cities have programs where you can ride on a tandem along with a sighted partner. If you can’t pedal with your legs, there are “handcycles”—recumbent trikes that you pedal with one or both arms. A national system of camps uses wide-tired bikes to teach kids with developmental disabilities to ride independently. Limitless variations exist on tandems, tricycles, and four wheelers. Some frame builders are even working on bicycles that can accommodate wheelchairs!

More considerations

Saddles

New riders are often tempted by saddles that are very wide and very soft, like cushy chairs. When you’re pedaling, though, these enticing perches are often a recipe for discomfort.

In regards to width, your best option is a saddle that is wide enough to comfortably accommodate both of your sits bones (the two bony protrusions you can feel where your inner thigh meets your crotch). There is considerable variation in this dimension between individuals, and it has nothing to do with your body type—you can have a large fundament and be most comfortable on a narrow saddle, or vice versa. If your saddle is too wide, the sides will chafe your legs when you pedal; if it is too narrow, you’ll never find a comfortable seat.

As for softness, the myth is that a cushy, gel-filled saddle will shield your nether parts from chafing. Unfortunately, excess seat padding tends to have the opposite effect, creating more points of contact where painful chafing and saddle sores can occur. Everyone is different, but most people are happiest on either a lightly padded saddle or just hard leather that has been broken in to fit them. Many people prefer saddles with a cut out down the center (available for both men and women), while others find this feature painful. You may need to try different saddles (and different combinations of saddles and trousers and/or technical bike shorts) in order to find what's best for you. Some bike shops allow you to test ride seats—if yours does, take them up on it!

Your seat should be just high enough that your leg is straight when the ball of your foot rests on the pedal at its lowest point, but not so high that your leg locks or that you need to rock your hips back and forth to ride. You'll also want to move the saddle far enough forward that you can reach the brakes without locking your arms. If doing so puts your seat too far forward for comfortable pedaling, then your bike is too long for you.

Saddle angle matters, too. If the saddle nose is irritating your crotch, it might make the most sense, counter-intuitively, to tip it upwards slightly—this pushes your weight further back, onto your butt. If you have the opposite problem, tip the saddle forward a bit—but not so far forward that your weight rests on your arms. If adjusting your saddle tilt doesn't improve matters, then return it to level and adjust your handlebar tilt instead.

Gearing

Shifting gears can be intimidating at first, but quickly becomes second nature. Practice is key. Ride around the block and shift back and forth through your entire range of gears a few times, and you'll get the hang of it.

The gears on your bike amplify the power of your pedaling. If you need to get up a hill or get started with a heavy load, shifting down (that's to a smaller chain ring up front or a larger one in the back) will give you a boost. If you're cruising downhill or on the level and want to go faster, shifting up will transfer more of that power directly into making your wheels spin. Shift just

before you begin to go uphill, and the chain will slide more smoothly onto the next gear. You must continue pedaling while you shift.

How many gears do you need? There is a lot of complicated lore and math about bike gearing. It's actually pretty simple. If you live somewhere with hills, or plan to carry anything heavy on your bicycle, you'll be happier with more gears. If you'll be riding relatively flat streets without a lot of stuff, only one gear might be enough, three should be fine, and ten will certainly be adequate.

If you're on the fewer-gears end of the spectrum, you can spend some extra money on an internally geared hub (some vintage cruisers have these as well). These have several benefits: the gearing is protected from the weather and barely needs maintenance. While you cannot shift and pedal at the same time with these hubs, you do not have to remember to shift down before stopping while going uphill.

The electric assist

An electric assist is like having extra gears on your bike. It is fundamentally different from a motorized scooter or moped in that it has no throttle and can't power you up a hill while you sit back and relax. On an e-bike, you're unlikely to top 20mph even when it's maxed out. What it can do is help flatten that steep hill on the way home from the grocery store. If the hills are very steep and what you're carrying is very heavy, that's worth something.

The downside to an electric assist is that the battery is bulky and heavy—meaning that if you run out of juice, or simply don't want to use the assist, you'll find yourself with one more big thing to carry. Regardless, some cargo bike riders are starting to adopt electric assists. Other fans are people who live at the top of a steep hill, or need to avoid exertion for medical reasons, or simply prefer to avoid getting sweaty on the way to work.

If you're curious about electric assists, it's worth taking a few out for test rides. But keep in mind that with enough gears on an unassisted bicycle, you may discover you have all the power you need.

Maintaining your bike

For many new riders, bike maintenance is a black box. But keeping your bike in working order can be as simple or as complex as you want it to be. There is nothing wrong with handing your bike over to a shop every time anything seems a bit off, and this practice is in fact not as expensive as you might think. Likewise, spending a little extra on a bike that rarely needs to be maintained is the best path for many of us. There are benefits to learning a few tricks yourself, though—as you’ll discover the first time you discover you have a flat tire after your local shop is closed for the night.

In fact, nothing about bike maintenance is particularly difficult once you have learned how to do it. It doesn’t take any special mechanical abilities—just some attention and a willingness to learn, one small step at a time.

You can hand over your bike to your trusty local bike shop and they’ll fix what ails it, for a fee. That’s a fine option and there is absolutely no shame in never, ever touching your bike with maintenance in mind. There are other ways to go, though, especially for simpler routine maintenance tasks like cleaning your chain and adjusting your brakes, intermediate ones like changing flat tires, and advanced bike wizardry like cleaning and repacking your hubs. I stick to the basics, below, but there are many, many resources for learning everything you want to know about bikes and more.

Community bike projects

There’s a different kind of bike shop proliferating in cities and towns around the world. They’re called “community bike projects,” “bike co-ops,” or sometimes funny and whimsical names. You can usually identify them by the smiles and bustling atmosphere inside and the giant heaps of donated bike frames and parts out back.

These are places where anyone can go and get a bike, or bike repairs, or parts, or gear for free or very cheaply. Everything is donated, and most are run entirely by volunteers. There’s a catch, though: you’ll need to do the work yourself, and you’ll often need to trade volunteer hours for parts and frames. Volunteers are on hand to guide you through fixing or building your bike, giving you tips and encouragement step by step as you diagnose your

bike repair needs, find the parts, and take things apart and put them back together. It might sound intimidating, but the beauty of bicycling is that nearly everything is easily fixed and there are only a few simple systems to learn about. It's incredibly empowering and a great way to meet people and find out about other rides, events, and activism opportunities.

These bike projects often have a weekly or monthly night just for female and trans identified persons. If your local project doesn't have one, there's no reason you can't start one, even if your bike knowledge is rudimentary. These places are all about people from all different walks of life helping each other make things happen.

Be your own mechanic

If it's more your style to figure things out for yourself in the privacy of your home, why not learn to be your own mechanic? All you need is some elbow grease, patience, time, and a good book or access to the internet, where you can find words, photos, and videos to help you learn to do any bike maintenance task you can dream of.

Here are some extremely basic tips to start you out:

Air up. Tires need the air topped off occasionally; more often in the summer. Buy a floor pump for this purpose or swing by a bike shop occasionally to use theirs. The little portable pumps that you can throw in your bag for emergencies won't get your tires up to full pressure.

Each tire has a recommended range of pounds of pressure—measured in pounds per square inch, or PSI—that's written right on the sidewall. Most tires have a recommended pressure range. Try to keep it within five or ten pounds of the maximum. If you over-inflate your tires, you'll notice you'll start to send chunks of gravel flying. If you under-inflate them, you'll have to work a lot harder to ride, and you risk the dreaded “pinch flat” or snakebite from your tube getting pinched between the tire and the wall of the rim.

Flat tires are the most common maintenance problem you'll have. A time will come when you'll be riding along and hear either a loud pop or a slow hiss,

and suddenly you'll have a puncture. Actually, they're a bit of a misnomer. While it's possible for the tire itself—the part that comes into contact with the ground—to wear through or develop a hole in it, most flats are actually caused by punctures in the much thinner rubber tube that sits inside the tire. Most flats are caused either by a piece of glass embedded in your tire that's worked its way through to the tube or else by the tube being pinched between the tire wall and the rim when the air pressure gets too low. Patching or replacing the tube is usually quick and not very expensive if a bike shop does it; it's even cheaper if you learn to do it yourself.

Keep your chain clean. All you need is a rag and a little bottle of chain lube (definitely don't use anything but made-for-the-purpose chain lube unless you're in a real pinch). Flip your bike upside-down, wipe the gunk off your chain and gears, put a drop of lube on each link, and then wipe off all the lube. Voila. If the weather's wet, you might even do this every day. This will keep your gears from wearing out prematurely—they're expensive to replace, so this basic maintenance helps your pocketbook as well as your ability to shift.

Brakes and rims. The more you brake, the more your brake pads wear down. As this happens, they leave a layer of debris on the rims of your wheels. When your rims are dirty, they wear your brake pads down even faster, like sandpaper. It's a good idea to get in the habit of wiping down the rims with a (non-greasy) rag every week or so, and more often in wet weather. Also keep an eye on your brake pads. When they are down to the wear line, have them replaced. If you let them go further, you won't be able to brake easily; and if you let them wear down to the metal, they'll tear up your rims. This is another piece of cost-effective maintenance, as wheels are a lot more expensive to replace than brake pads.

The annual checkup. It's in the nature of screws to come unscrewed, especially as you ride for months over bumpy roads. Brake pads wear down and so do chain rings. Rubber gets old and needs to be replaced. Cables wear out. Hubs need to be adjusted. Derailleurs can get finicky. It's a good idea to bring your bike into a shop for an annual once-over, preferably at either the end of winter or the beginning, or both. Or do an annual checkup yourself, working through the chapters of a bike maintenance book.

Protect your bike

In any city, a good lock is a necessity. Lock your bike up good any time you leave it alone out of doors—on a city street, in your own backyard or garage, or in your house while you're on vacation. Cable locks, however burly, will not do you any good—they can be easily snipped with shears in seconds. Spend a bit more and get a u-lock. These make your bike so difficult to steal that some brands come with insurance.

How you lock your bike matters as well. A bike parking staple or rack is probably your best bet, so long as it's securely bolted to the ground. A street sign is usually safe as well, though if bike theft is rampant in your city, make sure the sign at the top, no matter how high, is wide enough that your lock can't be slid over it, and that the sign is bolted firmly into concrete.

Always lock your bike through the frame and around an immovable object. If your u-lock is big enough, also capture one of your wheels within the lock; wheels are an easy target for thieves. Your front wheel is easier for an opportunist to remove, but rear wheels are more valuable (and expensive to replace). Which wheel you lock is up to you; in very high-theft cities, carry two u-locks so you don't have to choose.

Before your bike ever has a chance to be stolen, write down its serial number. This will be necessary to prove ownership in case it shows up at a pawnshop or is turned in to the police. The serial number is usually etched on the bottom bracket, below where the pedals attach to the bike. Take a photo of yourself and your bike and write the serial number on the back; or email yourself a digital photo and serial number with enough descriptive text that you can easily search for it again.

If your bike is stolen, alert the police. There are also several services on the Internet for registering stolen bikes, and there is a reasonable chance that searching online merchants that sell used bikes might turn up yours. If you don't find it again, your lock manufacturer, homeowner's insurance, or renter's insurance may cover the loss.

4

Carrying things by bike

“Experiment, don’t give up, lash it down good, go slow.” —Sara S.

When I first started riding a bike, I slung my purse strap across my chest, hopped on, and rode off. I soon graduated to putting the purse in a rickety metal front basket. This was my first bicycle accessory and the most revelatory by far until my discovery, years later, of the rear rack.

My front basket meant speed and freedom. Suddenly I could return my library books on the way to work and pick up a load of groceries afterwards without worrying about marring my professional outfit with a backpack. I could run spontaneous errands and bring leftovers home from a restaurant. In a city built for cars, I suddenly had a taste of how daily life could be not only functional without one, but easier and more flexible.

In the decade since then I’ve carried a lot of things on my bikes, and done it a lot of different ways. There’s no better feeling than arriving across town with your unlikely load intact, be it cupcakes or lumber. I’ve had my share of misadventures too, and hopefully this chapter will save you from repeating some of them. You learn, over time, to double check that your bungee cords are tight. You also learn that when you apply your brain to the task of carrying something by bicycle, there’s very little you can’t bring with you.

Wearing your cargo

The simplest way to carry something on your bike is often the same way you would carry it off the bicycle. Put your keys in your pocket, sling your shoulder bag across your chest, tie your sweater around your waist. So long as you keep things close to your body and out of the spokes, you'll often be fine even if you have no other carrying capacity.

You'll find yourself pushing the limits of this method, though, the first time you find yourself trying to ride home with a full grocery bag swinging from your handlebars, banging against the spokes, upsetting your balance, and threatening to send you toppling into the curb.

This scenario tends to lead people quickly to the backpack or messenger bag. Both are easy, noncommittal solutions, requiring no hardware or adjustments to your bike and allowing you to get on and off your bike with minimal hassle. You'll find the bag just as useful when you don't have your bike with you. In fact, you probably already own something like this.

Messenger bags sport a single strap that runs across your chest and over one shoulder. They get their name from their origins among bike messengers who require the convenience of being able to swivel their bag around their body for quick access to the packages inside as they run in and out of an office.

If you don't need easy, constant access to your bag as you ride around, you'll find a backpack to be just as convenient. A backpack is also far kinder to your back and neck, particularly if you often carry heavy items. Whatever you use, you'll be most comfortable with the bag strapped tightly to your body, maybe with a waist strap, and with the weight higher rather than lower.

For bicycling, look for a backpack or bag that is waterproof. If the one you use doesn't keep water out well, stow a plastic trashbag in an easy to access compartment to protect your stuff in case you're caught in a downpour.

Less is often more; and it's a universal truth that the more carrying capacity you have, the more you will find to carry. Sometimes it's nice to travel light,

and at these times an excellent way to carry your essentials is a hip pouch. This does not need to resemble the fanny pack of yesteryear if that isn't your style. Several small companies make attractive, waterproof hip pouches specifically with bicycling in mind. Some are made with a slot to handily carry your u-lock while you ride.

Letting the bike do the work

Carrying your belongings on your back has its advantages, but also its downsides. Backpacks make your back sweaty in the summer, and the weight, besides being ergonomically awkward, can lead to injuries.

The good news is that your bicycle can comfortably carry the same load as your back, and then some. Unfortunately, most bikes in North America are still sold without carrying capacity, and adding it is often up to you. Fortunately, there are many options out there.

The front basket

The front basket is iconic, and for a reason.

A basket provides easy access to your things. You won't need to get off your bike or awkwardly rummage through your shoulder bag when you ride up to the drive-through window at the bank or pause to have a snack. You can quickly grab your camera, and no effort is needed to get out your pen to jot down the phone number of the friend you've just run into.

The flimsy woven plastic basket with the plastic flower that graced your bike as a kid might not hold up under the loads you carry today. But a small wicker basket to throw your purse or wallet and keys into is still one of the handiest bike accessories available. Large, sturdy metal baskets are also available, and tend to be quite affordable.

Baskets usually mount to your handlebars. This means that if you ride a road bike with drop bars, the kind that curve forward, a basket might not be your best option, though a handlebar bag might work well. Larger baskets have struts that can be attached to your fork, increasing their load bearing capacity.

A word of caution: if you hit a big enough pothole at a high enough speed, the contents of your front basket will fly up and out, possibly hitting you in the face, possibly breaking all over the road. So if you ride at more than a leisurely pace, some kind of cover is a good idea, or even just a bungee cord or two to keep the contents inside. Also be watchful for any straps dangling through the holes of your basket that might get caught in your front wheel.

More options for the front of the bike

A basket is convenient for small things. But what if you want to carry more weight? While many people prefer to put their weight over their rear wheel, there is a strong faction, including many long distance bike tourers, that prefers to carry their load up front. How you distribute the weight on your bicycle affects how it feels to ride; the choice is a personal one, though some bikes are engineered to be most comfortable carrying the load up front.

The classic way to carry a lot of weight in the front is a front rack that sits low and center over the wheel. The racks consist of bars on which you can hang small panniers. Another option is the porteur rack, a shelf that sits over your front wheel and can serve as the base for a large-ish, boxy bag of the type that is beloved by long-distance cyclists.

Another option is more difficult to find and also more expensive, though quite sturdy. This is the rack or platform that attaches to the bicycle frame itself rather than the handlebars. This type of rack allows you to carry very heavy loads in a way that does not affect your steering. When you turn the handlebars, the rack doesn't move, making for a smoother, more stable ride.



The rear rack

My first rear rack, once I finally got it installed, changed everything for me. I kept a couple of bungee cords strapped to it at all times and used them to hold down whatever I needed to carry: a stack of books, my backpack, a load of groceries, a chair found at the side of the road. This is a strategy that can get you through many years and many quandaries gracefully and happily.

If your bike doesn't already have a rear rack on it, get one. If you have one, use it! You'll be amazed at what it can carry. But use a couple of bungee cords and reasonable caution when you turn, and it also isn't that difficult.

Racks run from very cheap to very spendy. Most bike shops should have at least one basic, \$25 model on hand and can attach it to your bike for a small fee. Most racks feature a platform of sorts on top, a bar on each side to hang panniers from, and protrusions near the axle to hook your pannier or bungee cord onto from below. Some racks have holes punched in the back where you can mount a permanent, relatively theft proof, red light.

Installing racks yourself can be a drag. Chances are your bike is not an exact match for the prototype any given rack was designed for. Unless this is the sort of task you love, it can be well worth paying your mechanic to do it for you.

If you carry a lot of weight, you'll need to think about bike maintenance slightly more often than otherwise.



Keep an eye on your brake pads—they're working harder and will wear out faster. Also be mindful of your wheels, especially your rear one—if you see any bent or broken spokes, replace them right away, or better yet invest in a stronger wheel.

Bungies and tie-downs

Bungee cords are inexpensive new, but if you don't like them or are really on a budget there are better options. Once you've patched an inner tube more than a few times or suffered a major blowout, it can take on a new, useful life as a tie-down. Some people cut out the valve and tie simple knots or loops. Others leave it intact, wrapping it around their load and rack. Aside from being free—and freely available in bulk at any bike shop—the distinct advantage over a bungee cord is that you don't have a high-stress elastic cord with metal hooks on the end that can seriously injure you.

Whatever you use, strap your cargo down very tightly, with the elastic stretched to its fullest. Believe that whatever you are carrying will use all its wiles to escape, and stay a step ahead of it.

You can use just about anything in a pinch, from your scarf to your sweater to a piece of butcher's twine or ribbon scrounged up by a supermarket employee. Use your shoelaces if you need to. Whatever you use, pull it taut and triple check the stability of your load before you set off.

If you use bungees with metal hooks, don't let them snap back and take out your eyeball. Also, make sure you keep everything out of your spokes, from tie-downs that aren't in use to your long skirt or scarf to your pants leg. Extracting a bungee from your hub is not fun. Being stopped short while in traffic by a hooked spoke can be disastrous, particularly if it is your front wheel that is hooked. Be especially careful to keep all tie downs and straps from dangling anywhere near your wheels.

Rear baskets

My next revelatory upgrade was the \$20 folding basket that mounted to one side of the rear rack. The purchase was inspired by an artist friend who had two of these and could regularly be seen trucking around town with her silkscreened tote bag containing wallet and keys in one basket and a grocery bag or stack of letterpress greeting cards in the other. In the rain, she put everything in plastic bags.

As with a front basket, a rear basket is wonderfully convenient. You can just put your backpack, a stack of books, a diaper bag, or a recent purchase in these and ride off. The baskets fold up, which is good if you keep your bike in a narrow hallway. These rear baskets are not extremely durable and are often difficult to mount to your bike. But overall they work great, are a good value, and are about as basic as it gets.

The milk crate

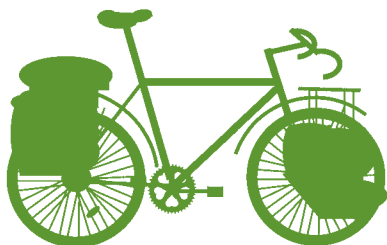
A time-honored carrying technique is a milk crate on your rear rack. These come in various shapes, sizes and colors and can be readily found by the side of the road, behind convenience stores, or holding records in your friend's garage. Attach them to your rack with hose clamps from the hardware store or for a more removable option, strap your crate on tight with bungee cords.

Panniers

Panniers are saddlebags; they're like backpacks for your bicycle, usually detachable, that hang from the side of a front or rear rack.

The iconic city cycling panniers are made by the German company Ortlieb. Their distinctive design is based on rafting bags meant to withstand prolonged submersion. The basic model is just a heavy-duty waterproof bag that rolls down and clips on the top. Plastic clips on the side hook over the top of your rear rack, and a bracket at the bottom keeps the bag from rattling or falling outwards as you turn. They come in bold, bright colors with reflectors on the sides. They're spendy but they last.

Multiple companies now make similar bags, and many have expanded on this basic design with welcome features like external and internal pockets (essential if you ever want to find your house keys or wallet when you need them), and a waterproof hood that stretches over the top of the bag.



The downside of panniers is that when you get off the bike you must lug them around by their finger-wrenching handle or spine-twisting shoulder strap. This is not a big deal unless you are carrying a lot of weight—a laptop computer, some books, a double load of groceries. If you spend a lot of time walking with all your things in between getting on and off the bike, you may be happier with a backpack and basket combination.

You might also run across touring panniers. These are not always waterproof, and have a great number of internal and external pockets. They feature rugged hardware and—of course—nowhere to clip a shoulder strap.

Sometimes people will use a cable lock to keep their panniers attached to their bike; they just have their stuff in another, more walking-friendly bag inside the pannier. This is a good option if you live in a place where you don't worry about the cable or strap being cut and the pannier disappearing.

Transverse panniers—a staple Dutch bicycle accessory that permanently attaches to your rack—are great for this. You can also purchase square pannier-baskets that are shaped to fit a single grocery bag and intended to be left on the bicycle in low-theft areas.

A somewhat dizzying array of panniers is now becoming available that more closely resemble fashionable purses and briefcases, or conversely that are made of oilcloth and suitable for rugged outdoor use. These are all very different in their attachments and closures as well as their aesthetics. When choosing a pannier for daily use, a primary consideration should be how easily it can be easily opened, closed, and taken on and off the bike multiple times a day.

A note about kickstands

Aside from a rack, the one investment that will instantly improve the way your bike works for you is the kickstand. For under ten dollars and less than five minutes spent fiddling with a wrench, the kickstand will change your life. No more returning to the sign you've locked your bike to only to find it lying helpless on the ground. No more awkwardly holding your bike one-handed while struggling into your rain pants mid-commute.

There are two kinds of kickstands: the most common one mounts onto your bottom bracket—the part of your frame that's between your pedals. This is fine for light use—picking up a few groceries, or taking your laptop to work or your books to school.

A sturdier option is the load-bearing kickstand that mounts to the rear triangle on the left side of your bike. This will keep your bike upright even though you've just balanced a box full of books from the library sale on your rear rack.

Yet burlier is the double kickstand. It costs more but will further revolutionize your life. This kickstand sits at your bottom bracket; when engaged it lifts your rear wheel off the ground and creates a tripod between its two prongs and your front wheel. This is an essential investment for cargo bikes and anyone carrying children. It's also handy for fixing flats on the fly. Triple kickstands exist as well.

Trailers

If putting racks on your bike is proving troublesome, or if you want to have the option to carry bulkier items than your racks can handle, a trailer is an excellent option.

Trailers are easy. You hitch them on, load them down, and ride off, feeling stable and only slightly more encumbered than before. When you're pulling the trailer, slow down on turns. Take it easy on hills. And remember that you're longer than you used to be.

Kid trailers

Trailers built for carrying children have a distinctive upright shape, cloth seats and basic seatbelts inside, and an aluminum frame with a roll bar surrounded by a cloth cover; some have a clear plastic “window” at the top that rolls up to let air in through a mesh screen. For carrying actual kids (or your dog), see Chapter 5.

For carrying cargo, a used kids trailer is usually a good, cheap bet, with little to no modification needed. They have the added benefit of inspiring anyone driving past you to give you a bit of extra room.

These trailers are abundant, gathering dust in garages all across the country as their original passengers outgrow them. In most places you should be able to find a used model for \$25 to \$100, depending on its condition and demand, at a yard sale or online. Look for one with wheels that don't wobble, screws that can be tightened, inflatable tires, and exterior fabric that's in good enough condition to keep the elements off your stuff. In order for the trailer to be useful, the hitch needs to be in working order.

Modification possibilities are endless. You can maximize your capacity by removing the seat. Some people remove the fabric and make a new bottom out of a sheet of plywood cut to fit. A giant plastic tub can keep your belongings out of the elements.

Cargo trailers

There's a blossoming of cargo trailers on the market, new and used, high end and low. You'll pay \$300 to \$600 for most new ones; it's possible to



find cheaper ones, but you'll sacrifice sturdiness and durability.

For light, everyday uses, like weekend camping trips or stocking up on bulk flour and peanut butter, a lightweight, fabric-sided trailer should be fine. But be cautious when shopping: some lower end (though not necessarily cheaper ones) are held together with plastic parts, reducing their weight limit significantly.

If you'll be carrying heavier things, even occasionally—furniture shopping, helping out on bike moves, cleaning out your garage or bookshelves, bulk grocery shopping for the neighborhood, carrying an adult sitting on a stool playing the banjo, or the hundreds of occasions that come up over the course of a year that might otherwise send you straight to your local car-sharing service's sign up page—get something a little sturdier.

A workhorse trailer will have a wood or metal floor, and should have all metal attachments. Some kinds come with full sized bicycle wheels; others feature metal guards above the wheels for more easily carrying wide loads. Other trailers are long and trussed like a bridge, able to carry hundreds of pounds. Most trailers have two wheels, but a few have a single wheel. These are small, light weight and don't take up much storage space. Not everyone likes the way they feel to ride with, and you must use caution and slow down when turning.

The trailer hitch

Before choosing a trailer, make sure it has a hitch that plays well with your bicycle.

On many cheaper trailers, the hitch is a hard plastic clamp that attaches to the rear left triangle of your bike frame or seatpost. This is easy to put on and remove, but does not hold up well under very heavy loads; also, some bicycles have design elements that are not compatible, and some racks and kickstands may also prevent you from using this hitch.

Sturdier, though less convenient, is the hitch that is attached to your rear hub. You can remove and attach the trailer easily, but must remove the wheel

to move the hitch to another bicycle. This type of hitch places quite a bit of strain on your wheel; keep an eye out for bent or broken spokes as a sign you need to upgrade to a stronger wheel.

Some hitches attach to your bicycle's seat post, and are very functional unless you have a particularly short bicycle or if it interferes with carrying items on your rear rack. A seat post hitch is good for heavy loads, but make sure your trailer is loaded evenly side-to-side and front to back as it will pull on your bike. Balance is everything.

Guerilla cargo tactics

Heavy things

Whenever you're carrying an unusually heavy load, it will feel wobbly at first, and you may wonder how you will manage it. Your body will learn the trick of stabilizing it quickly, though—it tends to take five or ten minutes to adjust. The faster you go, the smoother your ride will feel. Stopping and starting again will be the most difficult part, so if you need to carry something difficult, plan your route accordingly.

The best way to carry weight is low and centered over the wheel. If your weight is too far back or forward it will make your bike squirrely to handle. Some swear that heavier loads are easier to carry up front.

If a lot of your bicycling involves carrying heavy stuff, seriously look into investing in a cargo bike or tricycle. See Chapter 3 for a rundown of your options.

Fragile things

“It’s impossible to not jostle something when it’s strapped down, no matter how careful you are. I’ve carried many fancy cupcakes on bikes, both successfully and unsuccessfully. The successful times, I’ve had a canvas tote bag with a flat bottom that is big enough for the cupcakes container to sit level. You’ll need to hold the bag or hang it from your handlebars so it can swing lightly. Swinging lightly is key, strapping down is what causes problems.” —Miriam R.

Remember the exercise you did in grade school where you packaged up an egg and dropped it off the school roof? You’ll have a similar challenge next

time you buy eggs at the grocery store. Or when you offer to bake a cake for a friend's birthday. Or when you take a leisurely summer cruise out to your favorite berry patch and then want to get your seven pounds of blueberries home in berry rather than juice form. Or when you try to bring home a bouquet of flowers for your sweetie.

One peril met by fragile items is simply getting jostled around in your bag when you ride over potholes or tilt to turn a corner. Eggs and light bulbs will survive just fine so long as they are put away compactly, so that they aren't free to rattle around and knock into other stuff. Soft fruit like bananas, on the other hand, should be packed no less snugly but should be surrounded by something that won't bruise it, like a bag of lettuce or a sweater.

The other danger fragile items face is road vibration. In the case of berries or flowers, your body is often going to be the best shock absorber; carry these in a backpack rather than a pannier.

Anything that can't be stabilized on all its surfaces, like a cake, will be better off firmly stuck to a plate that's in a plate-sized box that's cushioned with a blanket and sitting in your trailer or on your rack as you ride extremely slowly and carefully over the shortest distance possible. You can eke out a little extra shock absorption by letting some air out of your tires.

Your beverage

It's always nice to have water around when you ride, and when you are going any distance and speed in hot weather, water becomes essential.

Many bikes come with a water bottle cage, or mounts to attach one. These are cheap to buy and easy to install. They are designed to hold the type of soft plastic water bottles you can buy at bike shops. Some water bottle cages—the bulky plastic ones—can hold a metal water bottle, though these have a tendency to pop out and roll across the road at inopportune moments. You might be better off with your hard plastic, metal, or glass beverage container in a pannier, perhaps one that's partly unzipped where the bottle can easily be reached at stop lights.

If you like to carry your coffee or tea with you while you ride, it's possible to purchase a bicycle-specific cup holder that attaches to your handlebars and holds a tapered cup conveniently close at hand. With a little ingenuity, you could also make your own.

Carrying other bicycles

The time-honored method for carrying a second bicycle is ghost riding. While riding one bicycle, you carefully guide the other bike along by grasping its stem (that's the part that attaches the handlebars to the frame). This requires some mojo and upper body strength. It's best to keep the second bike to your left so that your right hand is by your own rear brake; that way if you have to stop suddenly you won't fly over the handlebars.

If you have an Xtracycle, you're in luck—its panniers were designed with this need in mind. Strap the front wheel of the bike you're towing into the pannier (tightly!); the rear wheel rolls behind you.

Instructions abound on the Internet for making a DIY tow hitch for the rear rack of any bicycle. You remove the front wheel of the bike to be towed, drop the slots on the fork onto the hitch, strap the wheel to your pannier or back, and ride off.

If you have a trailer or cargo bike, you have two options. One is to take the wheels off the second bike and lash it down as well as you can. If bicycles were people, they'd be all elbows and knees, and it can take some finagling to keep the drive train away from your trailer wheel and prevent a rogue handlebar from scraping the ground. If you have the space, it's easiest to stand the bicycle upright on its two wheels, as though it were about to ride off, and lash it down tightly in that position.

How to move by bike

To the uninitiated, moving house by bicycle sounds crazy. Those who have participated in a bike move know the truth—it's faster, easier, cheaper, and more fun than moving with a rented truck and a couple of strong friends.

A bike move is a social event. It's a barn raising, a housewarming party, and a parade all wrapped into one. Numbers are what make it work. When

you have 15 friends carrying your belongings out to their bikes, strapping down their loads, and then bringing everything inside at the destination, a move suddenly becomes efficient. It may take a bit longer to ride to your destination, but you save a huge amount of time and energy when you don't have to make twenty trips on each end to carry all your boxes to and from a truck.

The best way to learn the ways of the bike move is to participate in someone else's. If you're a pioneer, here are some tips to get you started:

1. Set a date and invite people. Do this at least a couple of weeks in advance, and remind people again a day or two before the move. If you're comfortable with friendly strangers helping out, promote it widely in your local bicycling scene. Plan it like it's a party. And it really is a party on wheels—you may have to make this clear in the invitation.
2. Have all your packing done by the day of the move. Loading everything up should take about an hour. Be sure to label anything that shouldn't be moved.
3. Food is key. Provide coffee and donuts at the beginning of the move, and beer and pizza at the end.
4. Plan your route in advance to avoid steep hills and high-traffic streets as much as possible. Try to ride the route the day before your move to make sure there are no construction detours.
5. Have extra bungee cords and tie-downs on hand for people to use. If there's a chance of rain, provide tarps.
6. Plan for the big items. Take an inventory of large items like beds and refrigerators and try to make sure enough friends with large bike trailers are able to be on hand. It's cool if you need to borrow someone's truck to finish the job, but don't underestimate the ingenuity of your movers.
7. Take pictures and share them online! The more people move by bike, the more people will want to move by bike...

5

Family bicycling

“Biking is easy. Having kids is hard!”

—Emily Finch, Portland, Oregon, car-free mother of 6

My personal experience with family bicycling is nonexistent. But the family bicycle movement is spreading like wildfire, and when I put out a call for advice the response was overwhelming. Much of this chapter consists of the words of these pioneering, enthusiastic bicycling parents.

These folks represent a wide range of experiences, from being the lone cyclists in a rural area to navigating the streets of the bike friendly cities of the Pacific Northwest. Many of them own cars, some only bike recreationally, and others are resolutely car-light or car-free. Some of their advice is complementary, other times they contradict each other. Your own experience will no doubt vary—and there is no right or wrong way to do any of this.

The family bicycling revolution

“We began riding in the summer of 2011 as we transitioned to a car-lite lifestyle. We were hoping to save money on our automobile expenses and live a more community oriented life.”

—Stacy Bisker, Huntington, West Virginia (kids aged 9, 8, 5, and 2)

“We ride to spend time together, to take in the sights, smell the ocean, smile at other riders and walkers on the trail. We ride for small adventures to the beach or on the greenbelt trails through the city. We ride for donuts. We ride to piano lessons because it’s faster than driving, more scenic, and makes our cheeks rosy.” —Kevin Turinsky, Anchorage, Alaska (kid aged 12.5)

“Taking the bike is fun! We’re all happy and relaxed and talking with the kids doesn’t distract me on the bike the way it does in the car. I’m also very motivated by avoiding car traffic and not having to look for and pay for parking. It’s also a great form of exercise—and my only form of exercise these days.” —Madeleine Carlson, Seattle, Washington (kids aged 4 and 2)

“We try to let our older kids be more free roaming like we were in the 70s. That is definitely not the norm these days for other parents but we usually get kudos, if anything, for that stance. The kids—especially the older ones—almost always prefer to bike.”

—Dan and Kirsten Kaufman, Portland, Oregon (kids aged 12, 9, and 4)

“Biking is an integral part of our lifestyle, it’s faster and more efficient than walking, offers more convenience than relying on bus schedules for most trips and does a great job of keeping us active and in shape. It is easy to sit on the sidelines and bemoan the politics of oil and the injustices of war. I feel that being car-free I am accountable to my children for their future.”

—Sarah Noga, Arlington, Washington (kids ages 12, 5, and 1)

For many of us, riding a bike is sweetly nostalgic of our first taste of freedom and independence. But in recent generations, busy roads and an increasingly indoor, online culture limit kids’ range of motion even in their own neighborhoods. In 1969, 48% of five to 14 year olds walked or biked to school. By 2009 this number was 13%.

Nowadays, when kids come along, even the most resolutely car-free tend to get cars. And it’s no wonder. When a baby is born, suddenly at least one parent can’t go anywhere without both the kid and a large bag full of diapers, toys, changes of clothes. As kids get older, someone needs to bring them to daycare, school, camp, soccer practice, birthday parties all over town. Family

bicycles are not yet commonplace in North America, and our streetscapes are often anything but kid friendly.

In the face of this adversity, there's a burgeoning family bicycle movement. Many of these bicycling parents are determined that their kids grow up with the values, health, and independence that bikes can afford. Other parents are motivated to rediscover their own childhood joy of bicycling, seek a slower paced life, and find a more satisfying, economical, and healthy seat for their daily rounds than the one behind a wheel of a minivan.

Getting started

"We are new to bicycling and new to family cycling. It was at least 10 years ago I was last on a bicycle. We began the process with a lot of thinking, talking, reading, and eventually just trying." —Stacy Bisker, West Virginia

"The hardest part about starting was getting over the assumption that it's not possible. [It was always] too far, too steep, too many cars to bike to places we've previously visited by car." —Madeleine Carlson, Seattle, Washington

"The hardest part for me was just good old fashioned fear. The family member well-meaning "what-if" questions kept me up at night. What if the baby gets sick? What if it's snowing? What-if... What about... Well none of that is real. It's just like anything else. If a what-if comes up, we deal with it. The car was no magic-measure of security. If worst case something comes up that makes it impractical to bike or take transit to we can rent a car for a day. Like I said, no big deal." —Sarah Noga, Arlington, Washington

Getting started bicycling with kids, like bicycling on your own, comes with a learning curve—and with an added layer of social and logistical hurdles.

But many parents find that the greatest leap is simply deciding to begin. Once they start it quickly becomes hard to remember the obstacles that had seemed insurmountable. In their place, new and unexpected challenges arise, of course. But despite my best efforts to find these out, most parents interviewed for this chapter dwelt far more on the things that became easier and more fun after they began bicycling with their families. I was surprised to hear few complaints about dealing with weather, tantrums, family

disapproval, and busy schedules. In fact, several parents expressed that reliance on the bicycle simplified their social life rather than complicating it.

Baby on board

Pregnancy

Many women continue to ride a bicycle throughout their pregnancy; one parent who contributed to this chapter rode her bicycle to the birthing center while in labor, weathering four contractions along her 20 minute ride. The new family came home in a pedicab.

If you have the medical go-ahead to stay physically active during your pregnancy, there is no reason not to continue cycling. Regular physical activity that is built into your day, like bicycling, can help you to handle the physical discomforts that often come with pregnancy, from nausea to swollen feet to mood swings. Cycling can also help you to keep your energy up and maintain your fitness in preparation for birth and what comes after.

As your belly grows, make room for it by switching to a bicycle that allows you a more upright posture, like a cruiser or a Dutch bicycle, or by raising the handlebars on your regular bike. A more upright posture will also help keep you feeling stable as your balance shifts. You may want to add gears as well.

Incidentally, the bicycle types that are most comfortable to ride while pregnant are often the ones best suited to carrying children. Shop for family bikes now, before the baby arrives, while you still have the time and energy. As your pregnancy progresses you'll likely find yourself riding more slowly and avoiding lifting your bike; plan to adjust your routine accordingly. This, too, is good preparation for the pace of life with a baby.

During and after your pregnancy, it's important to listen to your body—and your medical team—when it comes to how much time, if any, you spend on a bicycle.

Riding with your infant

Many parents start riding with their infant right away. Others wait a few months or a year. Before your child can hold their head up, they can be carried in a carseat, either in the bicycle trailer behind you, or in front of you

in the bed of a front loader cargo bike. Your car seat carrying solution will depend on what kind of bicycle you plan to ride with your child as they grow.

Bicycle helmets are, in many states, legally required for all children, whenever they are being carried by bicycle. However, they are not manufactured for children under a year old. And it is actually unsafe to put a helmet on a child whose skull is still developing, who is resting in a carseat, or on or any kid who can't hold their head up. As with everything related to carrying kids, it is up to you and your team of experts to decide what is best for your family.

Carrying your child on your bicycle

Once your child is able to hold themselves sitting upright for extended periods, they can be carried in a bike seat.

Want to convert your own bike into a kid carrier by putting a seat on it? There are two basic kinds of child seat: front and rear seats. Many parents of multiple young children have both.

Front seats

“I highly recommend using a front carrier, where the child sits on a seat that is attached to the top tube, and has a foot rest for them. They are nestled in between your arms so they can't fall off. This allows you talk to them, and gives them a great vantage point to watch everything you are seeing. It allows you to discuss bike riding rules and tips with them in “real time.” You can easily talk with them rather than shout over your shoulder like a bike trailer forces you to do.” —Kristi Wood, Anchorage, Alaska (child is age 6)

“I love front seats—it's wonderful to have a small kid right in front. The only change I had to make to my bike to accommodate the seat was a longer stem when my son's knees got too cramped.” —Madeleine Carlson, Seattle

Increasingly common, especially for smaller children, are seats that mount on the front of the bike so that a small child can sit between you and the handlebars. These are loved by many parents for the sense of both protection and conversation they afford. They are loved by children for the sheer joy of being at the front of the bike with the world rushing past. (Windscreens can be purchased for some models for rainy or cold days.)

When choosing a front seat, consider how you will mount it to your bike. This depends both on the type of seat and the type of bicycle you plan to use. The basic distinction is that some of these seats mount to your frame—resting on the top tube—while others mount to your steering. The steering-mounted ones can make the bike somewhat more difficult to control, requiring more strength, but some bike frames make them necessary.

Rear seats

The most widely available seats mount on the rear rack, and can hold kids from a young age up to 75 pounds. These seats come in a lot of varieties; some offer quite a bit of support and may be better for kids that are less good at sitting up on their own. Once you've graduated to a rear seat, you can still easily chat with your kid. If you want to keep an eye on them, a handlebar mirror will help.

There are many different kinds of these available. They are typically mounted to your rear rack. You can also mount them to the deck of a longtail cargo bike, though models built for this are limited and most require some fidgeting. Rear seats are more conventional than front seats as well as easier to find. Your child will eventually grow too large for a front seat, at which point a rear seat may be your best option if they are not yet ready to pedal along with you on a tag-along bike. If you decide to go for a rear seat, consider converting your bike to a longtail (see below). This will improve your overall carrying capacity and give everyone a bit more space.

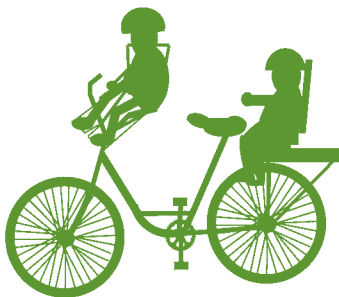
There are some down sides to rear seats as well. In some cases, a rear seat will interfere with your ability to hang panniers from your rack; others place your child so close to your seat that you will not be able to wear a backpack. Some people find they make the bike top-heavy or hard to balance while getting on and off. And a real downside is that with a child (or even just the seat) on the back of your diamond frame bike, it can be difficult just to get on and off the bicycle.

Getting on and off the bike

If you ride a diamond frame bike (with a top tube that runs straight between your seat and handlebars), you likely get on and off the bike by swinging your leg over the back tire. Mounting a child's seat on the back of the bike will have

the immediate effect of making this simple act immeasurably more difficult. Without too much weight on the bike, you can tip it sideways to lower the bar, but when you have a 30 pound kid on the back this also becomes less of an option.

This is where the brilliance of the step through frame becomes most apparent. These are highly recommended for anyone who regularly carries kids or cargo on the back of their bicycle.



If you don't have a step through frame, getting on and off the bike while the kid is on the back may always be awkward. But it can be done.

If your kid is old enough and doesn't need to be strapped in—for instance, if they are sitting on the deck of your longtail—get on the bike first and hold it steady while they climb on.

But most likely, you'll find yourself loading your kid into the child seat and then doing a kind of balancing gymnastics maneuver to thread your leg up and sideways over the top tube while holding the now heavily-loaded bike steady with your arms. Several parents assured me that regular yoga practice really does make this easier.

One way to make getting on the bike easier is to start by standing on a curb while the bike is on the street. A curb may also help with the dismount. Eric Moody of Portland advised, “hold the handle bars and saddle while straddling the bike and then, with great flexibility, pull one knee up and over.”

Equipment-wise, just as with any cargo bike, a good, solid kickstand will help a lot with loading and unloading your squirmy cargo, especially if you can kick and un-kick the stand from astride your bike. For even more stability, get a two or three prong model. See Chapter 4 for a more in-depth discussion of these wonderful devices.

Trailers

“When the toddler has fallen asleep, the trailer is a ready made nap bed. I always brought a book in my backpack because it happened quite often. I would get some good reading in and my son would get his afternoon nap.”

—Travis Wittwer, Portland, Oregon

If you plan to carry your child or children in a trailer, consider purchasing one made specifically for the purpose. These come in narrower models that hold one child, and wider ones that hold two. They feature a canvas seat with a five-point harness (or two) to strap the kids into the bike. Another feature is a rain/sun cover over a high crossbar that provides room for the kid to sit upright. Some trailers are designed to double as strollers, with a removable push bar and third wheel at the front.

All children-specific trailers have two wheels, which makes them stable and extremely difficult to tip over, though speeding down a steep, curvy hill is never recommended with any kind of trailer in tow.

One of the downsides of trailers is they are bulky and not as easy as an unencumbered bicycle to store in say, a cramped garage or bring through the door of a house. Hitching and unhitching a trailer, if you don't bring it with you everywhere, is an extra step that some find annoying on a daily basis. If you live in an area where theft is a concern, trailers are also not always easy to lock up.

See Chapter 4 for more about what to look for in trailers.

Cargo bikes

A cargo bike combines the best of both worlds. Kids have a bit more room in a trailer, and you can still keep them close, on your own bike, while still being able to carry other kids of cargo, whether it be a diaper bag or groceries.

The basic cargo bike options are described in Chapter 3. Many more varieties exist; most are wonderful, but not every type is for every person. If you're in the market for one of these bikes, be sure to peruse the section below on cargo bike shopping tips.

Longtails

“We’re in the process of outgrowing the city bike so a month ago I got a Surly Big Dummy and love it! It’s a lot of bike, but it has a lot of gears. So far the thing I love most is being able to haul two kids and their two balance bikes easily around. Previously, I had to hook up the trailer and shove the balance bikes in there, and I have to admit I hate dragging the trailer around.”

—Madeleine Carlson, Seattle

“Our typical full family ride uses four bicycles. The two eldest children ride independently, the two youngest ride on our Yuba Mundo with an iBert front seat, PeanutShell rear seat, on the deck, in the trailer, or a combination of any of these. My husband rides his own mountain bike. When I ride with our four children without another adult the same set up may apply, but recently I have preferred to fit them all on the Yuba Mundo in specific situations. Sometimes the children are exhausted and need to be passengers. Other times the roadways, weather or darkness factors may make riding together a safer option. This is working ok for us right now. It’s physically possible thanks to months of riding and gradually adding weight and experimenting with setups.” —Stacy Bisker, West Virginia

Longtail bicycles are quickly becoming the classic kid-hauling cargo bikes, proving a sturdy alternative to a minivan. You can read more about them in Chapter 3; in short, though, a longtail is like a regular bicycle with a frame extension that places the rear wheel several feet farther back and gives the bicycle a lower center of gravity. Most varieties sport a wide deck atop the rear wheelbase, upon which kids can sit, and two large panniers or ledges for carrying hefty items below and alongside the deck.

Longtails are one of the more affordable family bike options. They can be stored in a relatively narrow space and carried up and down stairs if needed. They also ride similarly to regular bikes, though some parents find them difficult to balance when carrying the bulk of the weight above the top deck, as when children are astride.

There are many ways to carry a kid on a longtail. For young children, you can still mount a front seat between you and the handlebars. One or even two

rear seats can be mounted to the top deck. The mounting hardware for most rear seats is not compatible with longtails, so some creativity is required to mount the seat securely.

Older children can sit directly on the top deck. They will be most comfortable sitting on a cushion (waterproof ones are designed just for this purpose). It's also a good idea to install footrests and to mount a set of handlebars below your seat for your passenger to hang onto while you ride. A sturdy double kickstand is essential.

If your longtail has a step-through frame, it will make getting on and off much easier. In addition, a bike that affords an upright riding posture will improve your ability to balance the bike comfortably with top-heavy loads.

The best longtails are the Xtracycle and the Yuba Mundo. Yuba makes sturdy, one-piece longtails that can carry many hundreds of pounds. Xtracycle makes a variety of bikes, all longtails, in multiple sizes and for multiple needs. They also make a kit that you can use to convert the bike you already ride into a longtail.

A variation on the longtail is the Madsen bucket bike. This is basically a longtail frame with a large plastic bucket that sits low over the back of the bike and which has seats for as many as four small children. In the bucket, the kids have room to play and can face each other; and being able to carry the weight of the children and cargo lower to the ground improves stability.

Frontloaders

Just as many parents prefer children's seats on the front of their bike rather than the back, many prefer to carry their kids ahead of them in a frontloading cargo bike rather than behind them on a longtail or in a trailer. This positioning facilitates conversation as well as keeping an eye on what your kid is up to and may give you a better shot at preventing them from removing their helmets and throwing their books overboard. Nearly all of the models described below either come with or have available a variety of options for cargo container, locking compartments, seating and straps, and rain/sun covers.

The handling on front-loading bikes often takes some getting used to; the longer the bike the greater the difference with what you are used to. Some parents report that keeping a fully loaded bakfiets upright requires lots of arm strength and feels extremely wobbly and difficult to pedal at first. They quickly become used to the way bakfiets ride, they say, even if it takes a while longer to build the strength to pedal it everywhere. The trick is to steer the bakfiets like a car, rather than leaning it like a bike.

There are several options on the market for front-loading bikes and trikes; most are imported and quite expensive, though these also tend to be the sturdiest and best-designed.

The most well known front loader in the U.S. is the Dutch bakfiets, with its signature wooden box (Note: bakfiets is pronounced “bock-feets” and is the singular form of the noun in Dutch—the plural is bakfietsen.) The term literally means “box bike” and is a generic category, but there is also a company by the same name that makes a popular model. Imported bakfietsen have some major advantages: Huge cargo capacity (you can easily carry a reclining adult, or two or more children plus a week of groceries in the box). They are well made, with high-quality, enclosed components, which means that maintenance is rarely needed and you can park them outside in the rain year-round without rust taking over. And they’re sturdy, built like tanks.

The major downside to bakfietsen is that they are heavy—as much as 100 pounds empty. They were created for trundling kids and cargo around the pancake-flat Netherlands, and the standard brakes they come equipped with are not suited to stopping at the bottom of a steep hill on a wet day with a full load of cargo. Brakes and gears should be altered to suit your terrain and weather.

The Bullitt, imported from Copenhagen, is another popular front loader option. It’s lighter, and it handles more like a conventional bike. It isn’t kid-ready out of the box the way a bakfiets is, but it is more flexible in its cargo capacity—it’s ready to strap a carseat to or to fit seating (which you must make or buy separately) for a young passenger or two.

Cargo tricycles are another option for front loaders. Tricycles aren't for everyone, but a cargo trike has the advantage of always being upright when you are stopped—no need for a kickstand or to climb on and off at lights. The Box Bike and Nihola brands, both imported from Europe, are popular and increasingly available. A U.S. made option is the Haley Trike out of Philadelphia; being individually made, these are not necessarily cheaper but are more customizable, allowing for choices in the gearing and box shape.

As family bicycling becomes more popular, there are more and more front loaders on the market that are specifically designed for carrying kids.

Keeping kids happy on the bike

“It’s okay to bribe them with treats. Then they sit on the bike and eat cookies instead of trying to take off their helmets.” —Emily Finch, Portland, Oregon

“Having a word game makes it easy so that there is no time to complain. We would play word games like do the alphabet with bike related parts or items we see around us. My sons’ favorite was each of us in turn taking turns adding to a story. Snacks also make it easy. It is hard to complain about being on a bike when dad has crackers, a bar, or apple slices.” —Travis Wittwer, Portland

“The occasional trip in the car or on the bus is all it takes for me to appreciate how much easier the bike is. The two kids tend to argue in the car, but the moment we’re on the bike, everything is joyful. We notice more exciting things—exciting to toddlers and preschoolers, that is—boats, train tracks, cement mixer trucks, etc.” —Madeleine Carlson, Seattle

Always having snacks and water on hand for both you and the kids on your bike will significantly improve everyone’s experience. Bringing toys and books along can also help keep your kid occupied in the trailer or bucket. If your child is a thrower, tie their toy or sippie cup down—try one of those spiral lanyards. Make sure it isn’t long enough to get caught in a wheel when the item is chucked overboard.

Bikes that your kids ride with you

Tag-alongs

“I was surprised at how quickly they took to it and how much they enjoy it. Their enjoyment of riding is so obvious and so infectious that their 2 year old brother insists on a turn on the trail-a-bike too when it is out.”

—Nicole Donnelly, Washington, DC (nieces aged 3 & 4)

A tag-along is a single wheel, seat, and set of pedals that attaches to the back of your bike. Your child sits on the back and pedals—or doesn’t. Like with a tandem, as the young pedaler grows stronger, they can really help power the bike uphill. Tag-alongs are loved by families of young kids who are able to bike on their own, but who can’t necessarily go as far or fast as every trip requires. It’s also good for kids who get restless sitting passively in a trailer.



When you drop your child off at school via a tag-along, you can remove it from your bike, lock it to a rack, and go about your day unencumbered. Kids can start on these as soon as they’re big enough to ride their own bike; the seats are adjustable so they can keep riding with them up to age eight or even older.

Tag-alongs are widely available used and in good condition. There are several varieties, with different attachments. Most attach to your seat post, which can interfere with your ability to use your rear rack; it can take a few minutes to get used to the feel of riding with one.

New and very popular is the Weehoo, which puts your child in a recumbent position, and a seat belt. Another option is the FollowMe, a device that connects your rear wheel with the front of your child’s bike, producing the stable ride of a tandem, freeing up your rear rack,

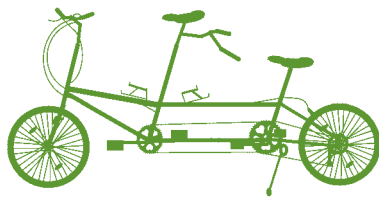
It is possible to attach some kinds of bicycle trailer to the wheel of a tag-along to increase the capacity (and length!) of your family bike. Look at the weight

rating on your tag-along before trying this, and heed it. Tag-along hitches have been known to suddenly fail when asked to exceed their recommended capacity.

Kid tandems

“Tandems are the most incredible things with kids. We’ll set out for a short ride on the tandem, and she’ll just sit back there telling me about absolutely everything in her world.” —Kevin Turinsky, Anchorage, Alaska

Tandem bikes are especially good for kids who are old enough to ride a bike but for whatever reason are not ready to independently ride their own bicycles everywhere. It’s also a frequent and charming sight at longer rides to see parents and teens riding together on a tandem as a bonding activity.



There are a multitude of tandem bicycles out there that are meant to be piloted by an adult joined by either one or even two children. These bikes are not cheap, but they can be adjusted for growing kids and can be used for years.

In most of these the adult rides in the front, piloting the bike, while one or two children ride behind, stoking.

Newer types of family tandem allow the kid to ride in the front while the adult behind them maintains control over steering and braking. These bikes often are shorter than tandems (meaning the pilot in the rear can see around corners better than you might think) and at times resemble a hybrid between a tandem and a bike with a child’s seat in the front, or a front loader where the passenger can pedal.

Kid tandems are typically designed so that the kid does not have to be pedaling for the bicycle to go forward—the adult can be doing all the work. Because these are similar to regular bicycles you can still put a rack and

panniers over the front and rear wheels. Some parents will add on even more kids by putting a child seat over the rear wheel, or between them and the handlebars, or by towing a trailer or a tag-along behind.

A note on electric assists

Electric assists can be fitted to many cargo bike set-ups, and some specialty cargo bicycle shops also offer excellent electric assist options. Chapter 3 includes more details about the pros and cons of the electric assist. When it comes to family bicycling, some parents find an extra boost going up the hills they traverse regularly makes all the difference; others find the unit's battery to be heavy and bulky, one extra thing to carry and keep track of.

Shopping for family bikes

“For us, having the opportunity to test ride bicycles with the conditions we encounter daily would have been the greatest benefit. My five-minute test ride on the Yuba in Columbus, Ohio without my family is nothing like what we deal with adding moving weight and hills. When we were selecting a bicycle, we reached out to other bicycling families around the country and we are most happy we did. No one here had the information or the bicycles. It’s been a lonely adventure in that respect, but one that has give us perspective and passion.” —Stacy Bisker, Huntington, West Virginia

Family bicycling is still new to North America, which means that family bikes and gear can be expensive. Bikes and seats often need to be imported; locally made varieties tend to be manufactured in small quantities; either way the price can seem sky high.

Keep in mind that when it comes to cargo bikes you get what you pay for. If you’re on a tight budget, look for a used bargain before you settle for a cheap knockoff. The good news is that the same factors that lead to high prices also mean that most cargo bikes on the market right now are so well made that even heavily used ones will often still be in great condition to meet your family’s needs for many more years.

Buying a new cargo bikes can be the equivalent of investing in a used car, in both utility and price. But unlike a car, a utility bike needs to not just fit your

passengers and stuff—it needs to fit you comfortably, as well as any other adults who will be piloting the bike. It also needs to have suitable gearing and brakes for the type of terrain you'll be riding on.

Test riding a bike before you purchase it is essential, especially if it is a pricey investment that you plan to use as a major family vehicle. That said, many families just read up about their options and jump in, and things work out well. Cargo bikes hold their value, and if your first attempt doesn't work out, another family will likely be very happy to take it off your hands.

If you live in a city that boasts a specialty cargo bike shop, then you're in luck. These shops tend to have small selections tended by knowledgeable and helpful owners. An increasing number of regular local bike shops carry one or more lines of cargo and kid-specific bikes. Ask at yours to see if they have anything for you to try. If not, you may need to get creative.

Another option is to find other early adopters near you who are willing to let you try their bikes out. If nobody in your town rides a bakfiets, maybe a family a few hours away has one. The Internet is a great resource for finding other bicycling families.

Another option is to go to where the bikes are. If you have a vacation or business travel planned to a city where there are bike shops that carry cargo bikes, then plan to test ride as many as you can during that time, preferably with your kids and something equivalent to a couple of bags of groceries on board. Some families plan their vacations specifically around this goal.

The appendix at *EverydayBicycling.com* includes a partial list of bike shops that specialize in cargo bikes, as well as links to the North American retailers of a long list of cargo bike brands.

Maintaining your cargo bike

While you seek out the bike setup of your dreams, conduct a simultaneous search for the mechanic of your dreams. The good news is that the more expensive the bike, the less maintenance it is likely to need. European imports are built to last forever with minimal care. The drivetrain is internal,

the tires are as durable and puncture proof as bike tires can be, and even the chain is enclosed in a case. This is a good thing, because they are extra difficult to work on and often require specially imported parts and tools.

Even if you don't need to take your bike in every month for a flat tire or squeaky brake, you will still need to do a tune-up once a year to keep the wheels spinning smoothly and the brakes stopping you safely. So unless you have a motivated handy person under your own roof, it's a good idea to start feeling out your local bike shops and seeing if one of them has a mechanic eager to take on the challenge of caring for your new ride.

Teaching your kids to ride independently

Balance bikes

Probably the best way—and definitely the cutest—to start your kid off learning to bicycle when they are tiny is with a balance bike, also called a scoot bike or a run bike. These resemble most of all the velocipedes of two hundred years ago—they have two wheels, handlebars and a seat, but no gears or pedals. The kid sits on the seat and propels themselves forward with a running motion, also using their feet to stop. You walk or ride along with them, teaching them the fine art of stopping at intersections, looking for cars, and riding with others.

Learning to ride a balance bike tends to be the best way to prepare a child for the transition to a pedal bike. True to their name, they teach the most difficult part of bicycling—balance—in a way that tricycles and training wheels don't. If you have an older child who is learning to ride, or if you don't want to invest in a balance bike that will be quickly outgrown, you can get similar results, though with somewhat more ankle-bruising potential, by removing the pedals from the regular two wheeler your child will eventually ride. Once they are comfortable scooting and gliding around this way, put the pedals back on and they'll get the hang of it in no time.

Training wheels

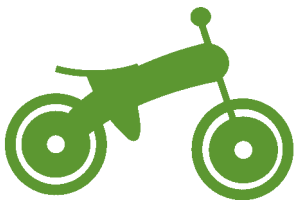
Training wheels are still the standard way to start your kid out riding a bike. Here is how training wheels work: You install them on a two-wheeler so that they hover an inch off the ground when the bike is upright. The idea is that

if the kid tips one way or the other, for instance while turning, the training wheel on that side can carry them for a minute until they are able to balance themselves upright again. Raise the wheels incrementally as the new bicyclist gains skills and confidence, until eventually they are no longer needed.

Training wheels are not an ideal solution for everyone. The most timid new cyclists tend to treat a bike mounted with training wheels as a tricycle, riding on three points—this does not help them learn balance or confidence and makes for an uncomfortable ride. If you are not having good luck with training wheels or would like to bypass them altogether, then for younger kids go with a balance bike, and for older kids and teens see the first chapter for tips on learning to ride.

Kids riding their own bikes

“I think the key is understanding the child, knowing when you need to go exactly at their pace and when it is ok to push just a little bit further. Kids like to say ‘I can’t’ a lot. I have learned to ignore that and say ‘but see, you just did’ a lot. It is amazing how far a little encouragement goes.” —Nicole Donnelly, Washington, DC



How old do you have to be to learn to ride? The answer varies, sometimes wildly—every kid learns at their own pace. Some are ready to roll as soon as they can toddle, while others aren’t comfortable getting on a bike until they are in their teens or older.

You’ll likely know when your own kids are ready. When that happens, how do you teach them to ride safely and confidently?

Teaching your kid to ride

Doug Smart in Corvallis teaches bike safety to school kids. Here are his guidelines:

• **Model expected behavior.** Kids aren't interested in things like formative vs. mature brains—if you expect them to wear their helmets, then you need to wear yours.

• **Consistency.** All the safety checks and behaviors need to be done the same way every time so they can become lifelong habits.

• **Responsibility.** For many kids bicycling is one of their first opportunities to interact with adults on a nearly equal basis. They are responsible for their own choices and the consequences of those choices to themselves and others.

• **Get comfortable!** If you're a nervous role model, your kids will learn to be nervous when they ride. This may mean doing family rides on off-street paths for a while as you both build skills.

• **Trust your kids.** Emphasize safety and offer some coaching and then shut up for a bit. Give them space to make mistakes.

• **Consider asking for help.** It is not abdicating parental responsibility to ask a friend to help out or to put your kids into a class to learn bike skills. Often kids will listen better to an adult who isn't their parent. Just make sure you and that other adult are reinforcing each other.

Riding together

Riding with your kid, especially when they're just starting out, will present a learning curve for you as well as for them.

Start with short rides, stopping while it's still fun, before your kid is tired or overwhelmed. Teach one or two new ideas at a time.

What you do is even more important than what you say. When riding with your kid, whether on separate bikes, or with them on the back of your bike, it's important to be confident and consistent. See Chapter 1 for basic skills and safety practices. If it is your habit to stop when it's necessary, signal your turns, hold your line, and know how to safely handle difficult traffic situations, then your kid will learn to ride safely without much instruction. Conversely, if you're a timid or aggressive rider, or if you treat stop signs

differently when you're riding on your own, your kid will pick up on that and ride that way as well.

One question some parents have is where to ride in relation to their child. As with everything else, there's no right answer. Ride in front to control the pace, show the way, and ensure that the kid is going to stop. Ride behind to keep an eye on your kid, and protect their wiggle zone. If you say "stop" and the kid doesn't stop, you can zoom up ahead of them.

Choosing kids' bikes

"Nothing too complicated. Balance bikes are great for really small kids. Getting into grade school a standard bike with the pedals temporarily removed will serve the same purpose. A multi-speed bike is ok if they don't worry about shifting until they have the basics down. Beyond that, it needs to be something that can be easily adjusted to fit." —Doug Smart, Corvallis, Oregon

"If you're going to build your kid a bike, make one they'll want to be seen on." —Kevin Turinsky, Anchorage, Alaska

Every year it gets a little easier to find new bikes for kids. Go to a bike shop you trust and look for everything you would want on your own bike to make it comfortable for the type of riding your kid will be doing. Make sure it fits comfortably, and add fenders if your kid will be riding in wet weather, and a rack or basket for carrying things. Get them a helmet and a lock for the bike, and lights if they'll ever be riding at night.

There is a glut of cheaply assembled bicycles available at big box stores—these are tempting as an investment that will be quickly outgrown. But they are not designed to be ridden farther than the end of your driveway and even at such close range they tend to fall apart quickly. Buying a kids' bike from a local bike shop will help ensure a higher level of both quality and service as your child begins their independent bicycling life.

Another good option is to go vintage. Most bikes used to be built to last. Your chances of finding an old banana seat cruiser in good condition will go up considerably the less popular bicycling is where you live. You'll need to get any vintage bike thoroughly tuned up and you may need to replace all

the rubber before it's road ready, but this can be an attractive and relatively affordable option.

Used bikes of a more recent era are also often a good option. If your kid doesn't have an older sibling to inherit an outgrown bicycle from, perhaps a friend or neighbor is ready to move on. Also, community bike projects or co-ops often have a surplus of kid's bikes available to build up.

Kids grow, and it's safe to assume that most kids' bikes won't be with you for long, which is another reason to invest in a good quality one that you'll be able to resell.

At the same time, make sure that the bicycle you choose doesn't have too much room to grow. Trying to balance on a bike is tricky enough, and it's even harder when you have trouble reaching the pedals, much less the ground.

A final option for kids once they get into grade school is folding bikes. The seatpost and reach are fairly adjustable, though length tends to be a bit more of an issue. If a kid is reaching too far, they'll have trouble controlling the bicycle. But once your child is able to comfortably ride a folding bicycle, they'll be able to keep the same bike through adulthood.

Family biking logistics

Safety

Safety is a relative concept, and deeply disputed. It's hard to shake the idea that cars are safe, and this feeling of safety has led to something of an arms race in the size and weight of family vehicles. But statistically speaking, children are in more imminent physical danger while in and around motor vehicles than in any other situation. And the lasting effects of inactivity and social isolation are even greater in children than in adults.

In reality, we each have a different threshold when it comes to what feels safe and what doesn't. And whatever your theories about safety, the reality of the roads on which you travel will likely have an even greater impact on your decisions about bicycling. Here are just a few perspectives:

“We have found most every town can be traversed by bicycle. It is a matter of knowing where to go, being flexible, having an understanding of your community and its life pattern. We are familiar with which streets have more car traffic, where to go at night for better lighting, less pot holes or where the sidewalk may be the favorable and safer location. All of this has taken time and practice. There are places we would not travel by bicycle with our children, but would go there alone or with other adults. Our children can be more unpredictable on a bicycle and some roads require a lot more attention. Some places are too far for their endurance. Sometimes we travel late at night and we prefer to know we can get everyone home without them falling asleep at the handlebar.” —Stacy Bisker, Huntington, West Virginia

“I think safety has to come first when you are taking a child with you, and that can be an absolute deal breaker. We lived in central Texas until Cora was one year old, and cycling with her was completely out of the question. The issue was cultural as much as it was about infrastructure. This was one of many factors in our decision to relocate to a place like Portland. It’s completely different here. Getting started was so easy. Now the challenge is choosing to get out there in the rain and dark whenever we can with her. Honestly, the car is always there as a backup” —Chris Trahey, Portland (kid aged 2.5)

“It took Tyler a little while to get used to wearing a helmet, but we made it clear it was necessary and now he doesn’t even think twice about wearing it.” —Kristi Wood, Anchorage, Alaska

“We have to assume that we are completely invisible and most of the time it seems like we are.” —Sarah Noga, Arlington, Washington

“Have belief that kids will be safe and that a parent has the skill to keep them safe. Routes should be planned; riding in traffic should be taught and practiced; and riding on a street involves a level of focus that is different than riding on a sidewalk.” —Travis Wittwer, Portland

Weather

“Many parents seem to think children are fragile humans that must be sheltered from the elements, when in our opinion, as long as you dress your

child appropriately, there is no reason to shield them from inclement weather. We think it's good for kids to learn how to be comfortable and enjoy themselves in 'bad' weather." —Kristi Wood, Anchorage, Alaska

"We don't go out with children in heavy rain. We go out in light to moderate rain when we must, and we go out prepared. Clothing has certainly been something we have been investing in. All the children now have waterproof jackets. We haven't bothered with waterproof pants yet, but use snow pants in colder weather." —Stacy Bisker, Huntington, West Virginia

A number of parents have confided to me that Portland's incessant rain seems to bother them far more than their kids; several said their kids actually love to ride in the rain.

The same weather advice given for adult riders in Chapter 2 applies to young ones. Drink a lot of water and play it safe in very hot weather; when it's cold or rainy, focus primarily on staying warm rather than staying dry.

Fenders are a must when you have kids on your bike in wet weather, or in a trailer or tagalong behind you. Rain and/or sun covers can be purchased for many cargo bikes, and are well worth the extra investment. Bring a towel to wipe off bike seats that have gotten wet while the bike is parked. Kids who are sitting still on a bike will get colder than ones pedaling, and need warmer clothes; but impermeable rain gear is less likely to be a problem. Waterproof ponchos with hoods are good raincoats for growing kids, and can be draped over the bike seat along with the kid to keep water from pooling below them; a drawstring sewn into the bottom hem can prevent it from blowing around.

Life logistics and scheduling

"The flattest route is always better than the shortest route."

—Emily Finch, Portland, Oregon

"We have to plan out grocery stops better and do less of the 'I forgot one thing let me drive back to the store and get it' kind of impulsive trips. Uh, yeah...we get to eat a lot more, too." —Sarah Noga, Arlington, Washington

“One trick is to encourage play dates that are close to our house, so that we have less distance to go.” —Kristi Wood, Anchorage, Alaska

“I need to get over my tendency to apologize for having to schedule around the extra time it sometimes takes to arrive by bike.” —Madeleine Carlson, Seattle

“We have tried hard to not replace many of our former auto destinations, enjoyments, or habits but found that we do end up declining some party invitations because of distance, or not running out for plumbing parts 17 miles away. We have learned to prioritize our time and energy, something we had previously been on the track to do, but increased our conscientious efforts with this transition. We may drive to a far away party, but it is because the host is a good friend, not just because we received a classmate invitation. We once waited three days for the local hardware store to open and made do with just one working toilet. In either situation, there were only benefits to be found.” —Stacy Bisker, Huntington, West Virginia

The pace of life changes by bicycle; and this becomes even more true once you have kids. Getting kids out the door no matter what vehicle you use can be a challenge; by bicycle it can become more time consuming, when extra things like rain gear and helmets need to be found and adjusted. Bicycling outside of the neighborhood also tends to take longer when you’re carrying kids.

Logistical issues result in many bicycling families simply going fewer places and partaking in fewer extracurricular activities. For many parents and their kids, this is a net positive, resulting in less time on the go and more time and freedom to play.

Bicycling families often—though by no means always—include one parent who works from home or part time, or a parent whose full time job is child rearing. This arrangement is frequently made more financially feasible by the choice to sell a car or drive it less.

Creating community

“If there are local biking groups, go on a group ride. Kidical Mass rides are wonderful to ride with...or just meet them at their end point if you’re not ready to climb aboard your bike just yet. But many cities have group rides that aren’t specifically family-oriented, but are geared towards new riders or riders of all abilities. Seeing real people out there is great, but it’s also inspiring to connect with other biking parents online: read blogs, tweets, join Facebook groups, whatever it takes to see that people out there are getting out there every day—and we’d love to have you join us!” —Madeleine Carlson, Seattle

“Find opportunities wherever you are, as close to home as possible, and just start riding. If you feel that the community or infrastructure is a roadblock to safe and fun cycling, consider what it says about the community and then do one of two things: become the champion of change or relocate.” —Chris Trahey, Portland

“If you’re not already, get active in every aspect of transportation and development planning in your community that you can. The earlier the better. This will allow you to have a positive and beneficial impact on your transportation choices and options, as well as allow your children to see how the process works and how to improve it.” —Kevin Turinsky, Anchorage, Alaska

“Joining a local Kidical Mass ride or creating your own weekend ride with other interested families is a great way to both create community as well as learn from each other.” —Travis Wittwer, Portland

Meeting other bicycling families often leads to opportunities to socialize at your own pedal-powered pace, as well as to share information, resources, and to get involved in improving bicycling conditions in your community. There are any number of ways to connect with other families; two of the most successful in recent years are Kidical Mass and Bike Trains.

Kidical Mass has sprung up in the last several years and happens in cities all over the country. It’s a short, slow-paced ride, in which families with kids of all ages and skills, on all kinds of bikes, ride together in the street. Usually these rides are short, stick to relatively low-traffic streets, and involve a

park on one end and an ice cream shop on the other. Anybody can organize a Kidical Mass ride—see tips in Chapter 6. Like its namesake, Critical Mass, it's a lot of fun as well as being a valuable venue to meet other families and start to get comfortable riding in the street.

“Bike trains and bike buses are useful. When I took the kids to school via bike, we went about half of the time with a bike bus. It made our numbers larger so we were a better presence on the road and provided a sense of community; connecting my sons with other capable adults.” —Travis Wittwer, Portland

Bike trains and walking school buses aren't a new idea, but they're enjoying a surge in popularity as a way for kids to walk and bike to school with adult supervision and safety in numbers. Sometimes they're organized by local college students, other times parents or school volunteers take turns leading as many as a hundred kids by bike through neighborhood streets to school. They tend to meet at a park and make their way to school through back streets, sometimes stopping to pick up more kids along the way. A good number of adults are on hand to help out wobbly riders, ensure safety, and cheer on the young participants.

More tips

A single chapter can hardly encapsulate all there is to say about family bicycling. The topic demands its own book—until that can be written, I'll leave you with these wise words of advice from our experts:

“80% of bike commuting is above the shoulders. It's developing the mindset that overcomes all the little excuses that tend to keep us from doing new things.” —Kristi Wood, Anchorage, Alaska

“We get lots of questions and inquiries on just about every trip. I feel this is my opportunity to demystify our car-free lifestyle.” —Sarah Noga, Arlington, Washington

“Kickstands get treated as an ‘accessory’ but with family bikes, they really ought to be standard, and sturdy, and ideally, two-footed. Kids will climb around on bikes.” —Katie Proctor, Portland, Oregon (kids ages 1 and 3)

“Bells. Kids love a good bell and the giving of a bell can be a token of accomplishment—you have done great and are ready for having a bell for when we ride in the street. And correctly adjusted helmets. Low on the forehead.” —Travis Wittwer, Portland

“Make it special. My nieces and I have matching bike bracelets and matching bike tee shirts and we call ourselves a girl bike gang. Boys can ride with us, but they can’t join! We don’t always wear them, but it is something we have that creates more of a bond.” —Nicole Donnelly, Washington, DC

“Families with special needs can do this too!” —Kathleen Youell, Portland, Oregon (kids aged 5 and 7)

“Start young and tell your kids why you prefer cycling. Get the right gear and consider moving to a neighborhood that is conducive to walking and cycling. The rent may be higher but it will save you money in the long run, increase your quality of life, and lower your worry factor.” —Dan and Kirsten Kaufman, Portland, Oregon

“Just start slow and get out there!” —Madeleine Carlson, Seattle

6

Get organized!

The first bike event I organized was terrifying. It was a cold November night and I was absolutely certain both that nobody would show up and that a large crowd would be there looking to me for direction. I put off leaving minute by minute, unnecessarily re-reading the organizing and publicity emails, counting the homemade signs rolled in a tube in my bike basket, wondering if the nausea I suddenly felt was a good enough excuse to stay home.

But finally I forced myself to go, rolling up to the meeting point ten minutes late. My second-greatest fear had come true—there was a sizeable crowd, two reporters with notebooks, and a film crew in an SUV, all looking at me expectantly. Within minutes, I had made several new friends, given my first television interview, and was on my bike, happily doing the thing I love most—riding through Portland's streets with a crew of chatting, cheery fellow riders.

The goal of the ride wasn't the same for everyone there. Some wanted to raise awareness about inconsistent police enforcement of bicycle laws. Others wanted to send a message to cyclists to stop at every stop sign, and yet others wanted to send the same message to car drivers. For many of us,

getting together to ride, meeting other riders, and talking about cycling was the underlying objective. We didn't have to agree on the issue at hand in order to want to make sure the public conversation about bicycling reflected the complexities that we encountered every day on the road.

Bikes and community

Bicycling can be empowering and transformative on a purely personal level. But it can also get a bit lonely, especially if you live somewhere it hasn't caught on yet. When you're out there alone, indignities tend to pile on: hostile drivers, misinformed police officers, unsafe streets and dangerous road crossings. Some people handle these difficulties by moving—across town, or perhaps even to a new city or country. Many others stay right where they are and work to improve bicycling conditions—much to the benefit of many a place that ten years ago would not have been seen as a likely bike-friendly community.

Many riders quickly discover the value of riding with others. Having a friend, coworker, or spouse to ride with, or even just to talk with about riding, is one of the primary factors that helps people start riding and keep it up. Having several friends, or a community, is what turns cycling into a way of life and allows it to become a widespread movement.

Subcultures are constantly emerging around bikes. You're probably already familiar with the sight of lycra'd out recreational riders pedaling around back country roads on a sunny weekend. Then there are the lawyers who go on hard and fast competitive lunchtime rides. Messengers get together and hold urban alleycat races. Grassroots bike festivals bring people together in cities around the world for purposes as wide-ranging as bike commuter breakfasts, educational sightseeing tours, and political protests. Critical Mass, though controversial, has served an essential function as an incubator for many bicycle organizations and events with more mainstream appeal. Cultures rise up around bike polo, welding and riding tall bikes, bicycle dance, riding restored vintage bikes, bicycle-themed art, teen bike programs, and anything else you can imagine.

Riding in a group allows you to check out what kind of bikes other people are riding, what they wear when they ride, what routes they take, how they

handle turns and stops and hills, and to compare notes and share resources. Even if you're the only person you know who rides a bike, the Internet can be a huge boon in the same way. There are many online forums where the smallest topics in cycling are discussed and argued about to an absurd—and extremely helpful—level of detail.

The value of building bicycle community is substantial on several levels. Being around other riders—on the roads, in the office, at the bar or coffeeshop, or online—is validation. Especially if you're a pioneer, as a transportation cyclist, or riding with kids, or riding at all, you will benefit greatly from regular reminders that you aren't the only one, that your choice to ride is sane and relatively safe one, that you aren't blocking traffic, and that someday in the not-so-distant future you might have a lot of two-wheeled company.

Getting organized

Beginning to ride a bike has been the occasion for many an ordinary citizen to become a dedicated attendee of city council meetings, documenter of road conditions, and amateur urban planning expert. The effects of these efforts are palpable, and usually of great benefit to the surrounding community, bike riders and otherwise. As you learn, don't forget to talk—and listen—to others. You can do a lot on your own, but your advocacy will have a more lasting impact when it clearly comes from the community.

Starting a group

Maybe you want to do more than just go on one bike ride. Maybe you'd like to start a group that meets regularly and can discuss issues online as well. Forming a group is a powerful tool for tapping into the energy in your community for improving bicycling conditions, or just to meet other people who ride bikes.

The old fashioned way

It used to be that if you wanted to get a group of people together who share a passion for the same issue or cause, you would reach them by leaving fliers at places they were likely to spend time.

Even in the age of the Internet, this method still works—and sometimes works even better than a social media campaign. If you want to hold a meeting

to talk about a local intersection that's dangerous for cycling or to start a social riding group, it's easy to create and photocopy an invitation and post it in bike shops, coffee shops, offices, student unions, on bike parking racks, and anywhere else where a rider or potentially interested person might see them. Then show up at the appointed time and place prepared with paper and pens so you can take notes and gather everyone's contact information.

If only one other person shows up, you've got the seeds of something real. If you get three or more attendees, congratulation: you have a movement.

If you are holding a meeting about a particular issue and are concerned that someone will come who opposes your effort and wants to derail it, make sure you have your allies and arguments lined up ahead of time. But don't forget to listen to your project's opponents, too; their concerns are likely valid, and your efforts will be all the stronger if you can find a way to work together.

Blogs

Have a way with words, or with computers? Are you inclined to observe, listen, and report? There's a real niche out there for bicycle blogging. The most successful blogs are either hyper-local, reporting on the details of roads, issues, events, and people in a particular region, city, or even neighborhood. Other bloggers choose a topical niche, such as vintage bicycles, biking with children, or analyzing legal issues in bicycling, and are able to find an audience and make their mark in that way.

Setting up a website is easy, and can be as simple as signing up for a free site through Blogger or Wordpress. Gaining an audience requires more work and requires regularly producing topical, readable content, reaching out to potential readers and to other writers and businesses that serve them, and finding a rhythm that doesn't burn out you, the blogger.

Established bloggers often are able to increase the amount of time they dedicate to the blogs by monetizing them. The bike bloggers most successful at earning a living from their work tend to be ones who have created an essential community resource that provides readers with opportunities to connect with each other and tap into broader happenings in the blogger's chosen realm.

Forums and lists

Plain old email lists, where you hit “reply-all” can get unwieldy quickly once you have more than three or four people involved. Email groups and lists, meetup groups, or listservs, are the next step up; they’re centrally organized, people can choose to add and remove themselves, and a moderator can ensure that things run smoothly and spam doesn’t take over.

Forums are similar, but instead of every message being delivered to every member’s inbox, participants must actively go to the forum’s page and look at what others’ have posted. Forums are excellent when more people are involved and working on diverse projects or discussing diverse interests that don’t necessarily overlap.

Both forums and listservs are excellent when there’s a community of people in a similar area or with a niche interest who want to have regular interactions or ongoing conversation. These are great organizing tools for chaneling many peoples’ energy into a project or into discussing issues. People can share their research, ideas and information spontaneously. They can also propose and begin organizing rides and events. They can also toss around proposals, ideas and keep each other inspired/encouraged/motivated. These are especially great when their members can also get together in person regularly, though it doesn’t have to be that way.

Meetings

If at all possible, it’s always better to get people together in person, even if not frequently, on a regular basis. Whether you are planning an event, brainstorming a lobbying session, founding a new organization or just having a social event over beer/hot chocolate, meeting up in person is important. This is where having a listserv, server, or blog comes in handy because it can get people together and then allow people who were unable to meet to see all of the info discussed in the event displayed in one place.

Meetings are where the best schemes happen. Make sure everyone has a chance to introduce themselves and share their ideas. Don’t forget to make the meeting fun. Go for a ride afterwards.

Unless your meetings are merely social, don't have them for "no reason." It helps to have a facilitator *and* a note-taker who can then put notes online or otherwise share them with the group.

How to lead a ride

Leading a bike ride can be done for fun, to meet people, for a political purpose, or just to ride. Everyone on the ride doesn't need to share the same motivation. A ride can be a great way to get people together, build community, and get a different feeling for the streets of your community. You can safely ride on streets you would not necessarily brave on your own.

Step one: Choose a theme or a purpose for your ride. Are you riding to a destination, like a coffee shop, bar, a movie or to testify at city hall? Or is the purpose of your ride to explore nearby trails, learn about local history, or see bike infrastructure? You could also have a ride for a social reason—like to get together with other people who have cargo bikes, host a singles ride, or just for fun among friends.

Step two: Choose a date and time for the ride. Make sure it doesn't conflict with the date and time of another event your riders may be interested in joining. If it does, see if you can start/end at the same location. Also choose a starting location. If it's a business or public gathering place, call ahead to make sure they'll open and as a courtesy to let them know there might be a rush.

Step three: Plan your route. Ride your route in advance. Tailor the route (such as which streets it goes down) depending on your participants. Is it an "in your face" ride to go down main streets to make a statement, or is it a social ride for little kids to get ice-cream and ding their bells? Scout out your route again a day or two before the actual ride to make sure there is no construction or other obstacles have popped up. It's good to know what turns/intersections you'll go through and whether or not you'll need ride helpers. Sometimes it's nice and safer to have people block intersections on larger rides.

Step four: Promote your ride. Make a flier, promote it on the internet, send it out over email lists, tell your friends, ask organizations to spread the word, or you could even send out a press release. It's an obvious thing to say, but people often forget to mention vital information on posters and in emails. Make sure you include: name, date, starting time, starting place, ending place, phone number and any other information people need to know (like who is the ride appropriate for?)

If you want the info to show up in newspapers/calendars, you may need to let them know a month in advance. For tv, radio and blogs, let reporters know at least a week in advance and give them a reminder the day before. Of course if you are not planning your ride to be very big, you may not need to do all of this, but even if you want just 10 people to come, you'll need to make sure they have all of the information.

Step five: The ride itself. Arrive at the meeting place early. It'll be your job to make sure the ride leaves more or less on time. You may want to leave 5-10 minutes after the announced start time to allow stragglers to join you, but any longer than that and people get restless. For a ride of more than a dozen or so people, it's a good idea to have one person leading the pack and at least one other person who knows the route who can bring up the rear in case someone gets a flat tire or is otherwise going slowly. If the group gets split up by red lights or flat tires, make sure the people at the front know that is happening, so they can wait for everyone else. Unless it's a race, keep it slow! There's a big difference between recreational rides for fitness and social rides for exploration, chatting, or protest.

Step six: After the ride, thank everyone for coming. If there's a good feeling and people want to keep hanging out, head to a bar or coffee shop. Start planning the next step!

Step seven: Follow up. Set a date for any follow-up activities, the next ride, or meeting and let participants know about it. Add new folks to the email list or let them know where they can find more information, and make sure they have a way to contact each other. If any members of the media covered your event, be sure to thank them.

Advocacy

If you are inclined to love diplomatic endeavors and untangling complex technical details, you might be a born advocate.

If you have a local bicycle or active transportation advocacy organization, contact them to find out how to get involved. Most offer basic volunteer opportunities like stuffing envelopes, or staffing the registration table at fundraising rides. These are great ways to get to know an organization, see how and if you might fit in to higher level volunteer positions, or see opportunities for new advocacy that their organization does not address. Depending on your skills and interests, you might end up helping organize events, monitoring legislative hearings, drafting position papers, or sitting on a committee dedicated to fundraising, outreach, or strategic planning.

If there is no local organization whose work appeals to you, consider starting one. Even if you are not so inclined, you can still be an effective advocate on your own by testifying at City Hall, writing a letter to the editor, lobbying your state (or national) representatives, getting signatures for voter referendums, or even running for office yourself.

Approaching city hall

Sometimes city hall is ready to help you; the powers that be just may not yet realize there is a need. In other cases, there may be obstructions. Your approach will depend on your local political climate, who is responsible for creating safer conditions for bicycling, and how receptive they are to actually doing so.

Sometimes advocacy can be as simple as a phone call or letter. If there is a major pothole on your bike route, glass in the bike lane on a major street, or an intersection along your route where people in cars routinely run the red light, you can call and report it; look online or in the blue pages for the proper number. If your request is fulfilled, be sure to write a thank you note.

If you have a more complicated project, or if repeated requests haven't been effective, it's time to get organized.

Your first step is to decide what to ask for. Perhaps it's a bike lane on a busy road that is about to be repaved—this is an excellent time to make infrastructure changes because the cost of re-stripping the road already needs to be spent. Other potential asks include lowering the speed limit on a street near a school, having bike parking installed in front of the library, hosting a *ciclovía*-style open streets event, or dedicating a certain percentage of the transportation budget to bicycling infrastructure.

Your next step is to do the research and talk to the stakeholders. Familiarize yourself with local laws. Perhaps your city has a transportation plan or even a bicycle master plan. Try to meet with the mayor or the person on the city council in charge of transportation, with the city-employed transportation planner in charge of bicycling infrastructure, and with any business owners, residents, or other people who might be affected by or have a direct interest in this project.

This is not the time to make demands, but rather to build relationships. From these conversations, you will gain helpful contacts and get a sense of who will be an ally and in what capacity. You may also find that you need to change what you are asking for. For instance, maybe there isn't room for a bike rack in front of the library, but the owners of the pharmacy next door have the extra sidewalk width and wouldn't be opposed to a rack so long as they don't have the responsibility of maintaining it.

Your next step is to decide how to go forward. Often, your meeting with the mayor may be all that is necessary—or you might need to write them a detailed follow up letter. Don't underestimate the value of a well-researched letter to city hall, showing a need for a project and describing how it will improve the city while being cost-effective. You can also often make progress by testifying at city hall—extra points if you have business owners and other advocates lined up to give their testimony as well.

Politicians don't like to do anything without knowing that that they have citizen backup, and that the project will gain them more goodwill than criticism.

For that reason, among others, it is above all important to have, and prove, the support of the community for the project. To do this you need to actually make sure community members back you up. Listen very carefully to anyone who does not support or agree with you. If you can adjust your project or rhetoric to meet their needs, they might become allies instead of opponents. Even if this is not possible, you will likely have a good deal to learn from them.

Then, keep following up until the changes are made. Quite a bit of persistence is often necessary. If you run into roadblocks—either active opposition or simple inaction—don't give up. See the next section for more ways to demonstrate public support.

All of this is also true at the state and federal level. All you can do is learn everything you can, keep talking to people, keep your issue in the public eye, and persist until you make it. This may involve lawsuits, or trips to the capitol, or even launching major political campaigns—but those are all-consuming endeavors. Start small and you might be amazed by what you can accomplish.

Advocacy case study

In Missoula, Montana a guy named Bob runs the city's community bicycle project and also serves as the town's main bike, transit, and walking advocate, regularly visiting city hall to weigh in on planned bicycle improvements (or lack thereof). One day, Bob went out to meet the road crew that was about to start painting a new bike lane on a major street. Their plan called for a four foot wide bike lane. Bob told them that five feet is recognized as the preferred width for a safe and comfortable lane. After hearing him out, the crew moved their machine over a foot and painted the new white stripes five feet apart.

Bikes and party politics

Bicycle transportation is one of those rare issues that has appeal across all party lines. Liberals and conservatives can agree on the values of improving conditions for bicycling. Conservatives might be more inclined to point out the huge cost of our existing road system and the substantial economic savings, both individual and societal, as incentives to choose bicycling. Liberals might focus instead on the health, social, and environmental rewards

of encouraging people to bike instead of drive. All points can potentially be agreed upon across the board. If you're lucky, you live somewhere that bicycling has not become politically polarized. Otherwise, the best you can do is argue the case for bicycling on its merits and not play into the partisan arguments.

Bikes at work

While many employers go out of their way to encourage employees to bike to work, many others are less inclined to provide material support such as secure parking out of the elements or places to shower and change after a long ride in. A few employers will even attempt to prevent their employees from riding.

If your employer doesn't encourage or actively discourages bicycling, it might be enough simply to ask for a change. On your own time, research bicycle parking costs and feasibility and present the plan to management. It might help to demonstrate the financial benefits that come from freeing up another car parking space, and presenting research about the benefits to employers in health care costs and productivity that stem from promoting active commutes.

If there are other bicycle commuters at your workplace, consider starting or joining a friendly competition to log bike commute days or miles within the company or between different businesses. Building a culture of cycling will eventually make the case and create the demand for bigger changes in the workplace.

Getting business on board

As you work to improve your city for bicycling, you'll find that local businesses large and small are among your strongest allies and your fiercest opponents.

When business owners, managers, and staff go out of their way to support cycling, even in small ways, let them know you appreciate it. Like politicians, business owners are much more likely to hear complaints than praise, and will often respond strongly to thanks—especially when those accolades are paired with an increase in visibility or customers.

Despite increasing evidence that cycling and walking customers tend to spend more than driving ones at downtown retail locations, many business owners are still skeptical of anything bicycle-related. Even the most anti-bike ones can often be won over, though. In these cases money may talk better than actual arguments. If a retail business is resisting bicycle facilities on their street, organize a ride with the purpose of visiting their business and spending money. Or ask everyone you know to go patronize the business, helmet in hand and ask the owner to support the bicycle improvements.

Sometimes a business owner might simply not be aware of cyclists' needs or that they are being friendly or unfriendly to them. For instance, if a delivery truck regularly parks in the bike lane outside a store, or the bike rack area is used to display merchandise, all you might need is a friendly letter to the owner letting them know that you support their business but need to have a safe and convenient way to bike there.

Bikes in the Media

When bicycle transportation makes it into the media, it isn't always in a positive light. We've all probably

Business case study

In Portland, Oregon, the city's transportation department deployed a successful campaign to improve bike parking citywide. For years, a small bike parking fund has been available to install a bike staple that parks two bikes in the space between sidewalk and street for any business that requested it. The demand for bike parking had grown larger than these staples could accommodate, though, and some businesses were starting to demand more.

So the city set up a program to build "bike corrals," which replace one or two on-street car parking spots with between ten and twenty bike parking spaces. City transportation leaders signed up four prominent local businesses to test the program. When the plan was announced, there was considerable pushback from other business owners—losing car parking meant losing money, they declared.

The corrals went in and quickly filled with bikes. The initial businesses suddenly had more convenient parking spaces for paying customers, and other businesses almost immediately started demanding their own bike corrals. One restaurant owner started a petition. Now there are over 70 bike corrals throughout the city, with a long waiting list for more. Cities around the country are finding that installing bike corrals is one of the most affordable and politically feasible ways to encourage bicycling and give a boost to the local economy.

read at least one story in the local newspaper, or seen one on TV, covering a new bike lane, a bike event, or a crash in a way that doesn't seem to fairly portray cycling in general or a particular cyclist.

The good news is that as bicycling becomes more popular as a way to get around, media professionals are taking it up as well. But even if an individual reporter does ride a bike, their editor might not be bike-friendly—or a reporter in a hurry might just pull a story about a crash directly from the police reports, or a story about bicycle funding directly from a highway lobby press release.

It behooves bicycle riders to be alert and media savvy in framing and responding to stories. When you're talking about bikes to the media, remember that you are telling a story more or less directly to people in your community. Imagine how you would talk about your cause to someone you know and respect, and tell the story that way.

Pitching reporters

One way to get realistic, positive stories about bicycle transportation in the news is to be proactive. Anyone can contact a reporter and suggest a story. Maybe you have an event, ride, or issue to publicize. If not, think about the most inspiring bicycle story you know. For instance, is your workplace or a local business especially friendly to bicycling? Or you can suggest yourself as a subject, focusing on how you work bicycle transportation into your life. This story will be most appealing if bicycling is unusual where you live, or if you do something outside the norm—for example, running a business by bike, biking with kids, commuting long distances, or carrying things that most people would assume requires a car.

Reporters will be more likely to cover your story if you make their job easier by giving them everything they need up front in a pitch. This includes a narrative for the story itself, which will preferably provide either an element of surprise, conflict, or overcoming obstacles. You'll also want to tell the reporter why their particular audience would be interested in the story and, if relevant, what section of their publication the story would be good for. Anything else you can provide that will help make the story quick and easy will make it that much more likely to happen—send quotations and photos

to a blogger or newspaper writer; let a TV or radio editor know about strong visual or audio elements.

Then compile your pitch into an email of no more than three or four short paragraphs. Take some care with the wording; a hurried news outlet may simply copy and paste your words. Be sure to include your contact information as well as any necessary details about dates, times, and locations. If you aren't sure who to send your pitch to, call or email the news outlet with a quick question, like: "Who do I send a pitch about a family of six that gets around by bicycle?" If you are pitching multiple outlets, personalize each pitch and send them individually. When someone bites, get back to them quickly. Even if you don't hear a response, it's fine to send a follow-up email or reminder a week later.

Working with the media is all about developing relationships. When a reporter writes a story based on your pitch, thank them for their coverage. If you liked the way the story turned out, be sure to put them at the top of your list when you pitch future stories. Likewise, be sure to thank reporters and editors for any positive coverage of bicycling, especially if that isn't standard.

Responding to stories

When you see a story that seems unfairly negative or biased towards bicycling, there are several ways to respond.

If a basic fact is wrong, you can request a correction from the paper. If a major perspective in a story isn't represented, you can contact the reporter directly to fill in the gaps and let them know that there's more to the story than they might have initially uncovered. If you are friendly and provide good, concise information, the reporter might just call you up in advance the next time they are assigned a story about cycling.

You can also respond to a story, positive or negative, by writing a letter to the editor or leaving a comment on the online version of the story. When crafting these, it is best to be brief, informative, and levelheaded. Write a couple of drafts and let the final one sit for a while before posting or sending it. Make sure your facts are impeccable and your tone is confident and encouraging.

Remember that any time you speak or write publicly about bicycling, you will reach a large audience of people—including reporters and editors themselves—who may be hostile or uninformed about cycling now, but who have the potential to become sympathetic allies, and who are likely to start cycling themselves one day and forget that they ever thought of it as anything other than a joyful experience.

Conclusion

I was timid and tentative about cycling for many years. I didn't start to feel truly comfortable on a bike in traffic until I started spending time with other people who rode bikes every day. My new bike friends and I would ride through the city at night in search of empty streets and late donuts, debate stop signs and turn signals, argue over our favorite places to cross the interstate or get up the ridge in the northeast part of town, and egg each other on to organize events or write letters to city hall.

Bicycling became a mark of pride for me, of identity and community. Being a cyclist meant I stopped riding the bus and no longer begged for rides from friends. I began to apply for bike-related jobs, go on bicycle dates, write long op-eds about bicycle laws, infrastructure, and culture, and dedicate myself to learning about cycling and being a bicycle activist in every spare moment of every day. I started to think of myself as a bicyclist.

I also started to notice that a few old friends also rode bikes all the time. I invited one of them to a group ride I was participating in, something silly involving costumes. She wasn't interested. "I don't want to be a cyclist," she said. "I just want to ride my bike to the grocery store."

For cycling advocates, this attitude is the ideal end goal: That getting around by bicycle becomes so normal that everyone can just get on a bike every day without thinking twice about it, and without changing their habits or identity, or needing to read a book like this one.

My dream is that within the next decade this book, along with the idea of identifying as a cyclist, will be obsolete, a curiosity. I hope that someday soon all young children will learn to ride, and that bicycling will become so normal that nobody has to think twice about it. I love the passion of my bicycle communities, but I envision the day when that energy and creativity can be directed elsewhere. That cultural shift is already happening, and by reading this book you are a part of it.

Now get out there and ride your bike!

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