

GROWING UP

THE INS AND OUTS OF UP AND DOWN GARDENING



GROWING UP:

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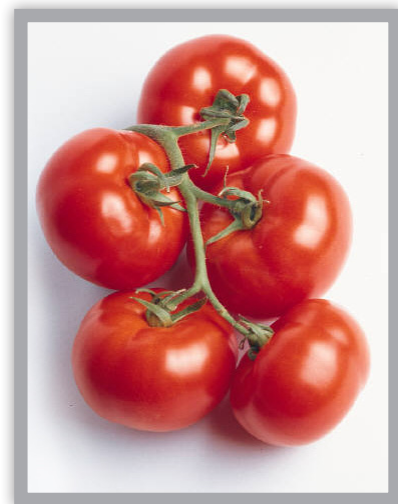
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INTRODUCTION

Some of my earliest childhood memories stem from summers spent with my great grandparents, and the hours I spent helping them tend to their garden; black eyed peas, peppers, tomatoes, potatoes and tons of other vegetables. We would spend the mornings in the garden and our evenings would end with the family gathered around the sturdy oak dining table, eating all of our days' work. The food could not have been tastier. As I grew up, the time spent in those gardens became progressively shorter until eventually, I had all but forgotten those summers. I have spent much of my adult life in apartment buildings with nothing but a patio or balcony to call my own. Until a few years ago, I never thought that growing my own produce was even an option, having less than 100 square feet of usable space to work with. As the cost of produce skyrocketed, I decided that it was time put my foot down. I began researching small space gardening, and I was amazed that I could grow almost every bit of produce I could possibly want regardless of the amount of space that I had available. The simple answer was to look up! Traditional gardening



dictates that a garden must be grown on large expanses of flat land, however this is simply not the case, there is infinitely more space when you literally turn that notion on its head.

Vertical gardening is the only logical step in this ever expanding urban environment that we live in. While our forefathers and mothers were able to purchase houses and live off the land, this unfortunately does not hold true today. Even if you don't live in an urban area, you may simply live in a place where the soil and weather simply do not allow for a traditional garden, or you may not have the time it takes to get your existing soil to become a suitable habitat for your plants. As our crop lands shrink more and more, vertical garden may well become the only choice for someone who wishes to flex their green thumb. Simply speaking, vertical gardening is making the most of your usable gardening space by utilizing climbing plants and vegetables, or by training non-climbing varieties to grow in small pockets of soil that are lifted away from the ground. This type of gardening has many advantages over traditional gardening, and once you discover how easy it is to move away from a traditional horizontally planted garden to a vertical one, you'll be rewarded with a cornucopia of benefits.

Your new vertical garden involves less work

and places less strain on your mind as well as your back. Even avid gardeners with plenty of space for a traditional garden are slowly moving towards vertical gardening. A traditional garden can lead to tragically disappointing results, as the more growing space you have, the more likely you are to get discouraged by near constant weeding, pest infestations and diseases, not to mention that many find watering such a large area is a never-ending obligation. All of these combined create a daunting task for even the most expert gardener. After years of research, I'm anxious to spread the word about vertical gardening; I want to live in a world where everyone can GROW UP regardless of how much land they have to work with.

I. But the Supermarket is Just Around the Corner...

So why on earth would you want to go to the trouble of planting your own garden? My question for you is: Why would you walk to the super market and pay for a bruised and chemical covered tomato, when you could simply pluck a ripe, delicious one from a vine directly outside your window? Most grocery stores



pride themselves on having “only the freshest ingredients,” and while this is all fine and dandy in times of abundance, *grocery stores only keep about two to three days’ worth of items on their shelves. During an emergency, when everyone is clamoring for the same items at the same time, there is a good chance that you won’t get what you need. The items that will sell out first are the ones that people know will help them get through a time of crisis.* It is during these times when learning to grow your own produce can be a major boon in your survival and overall wellbeing. You will have enough fresh produce to sustain yourself and, if all goes well, enough to barter for other items or creature comfort (think toiletries, medical supplies, entertainment items etc.)

Growing your own produce also has PLENTY of health related benefits that have nothing to do with produce.

Gardening is good for your Health & Well Being:

Bend, twist, reach, and pull.

This may sound like an intensive aerobics class, but these are actually exercises that you do while working in the garden. Researchers estimate that gardening burns an average of **300 calories per hour**, while heavy yard work can burn more than **600 calories per hour!** Engaging in regular physical activity like gardening is also an excellent way to lower your risk of some cancers.

Here’s the Dirt

Gardening is an ideal form of exercise because it combines three important types of physical activity: strength, endurance and flexibility.

Spending time in a garden is also believed by many to have physical and emotional healing effects. According to the American Horticultural Therapy Association, gardening can benefit people who are recovering from physical illness by retraining their muscles and improving coordination, balance, and strength. In addition, simply spending time in nature reduces stress, lowers blood pressure, and relieves muscle tension.

But the cancer-protective benefits of gardening don’t end there. Studies show that gardeners eat a wider variety of vegetables (rich in disease-fighting antioxidants and phytochemicals), and have a higher overall intake of vegetables than non-gardeners.

The Old-Fashioned Way IS Better

To reap the maximum health benefit from your gardening, labor intensively. Turn off your leaf blower and pick up a rake. Use manual clippers, trimmers and an old push lawnmowers if possible.

Try to stick to a regular “garden exercise” routine. Rather than saving up your outdoor work for one marathon weekend session, schedule at least 30-60 minutes of gardening two or three times per week. If you’re away

from home during the day, early mornings and evenings are ideal gardening times.

Work at a steady, constant speed, but be sure to change positions every 10 minutes or so to avoid overusing a particular muscle group. If you start by bending down to pull weeds, stand to prune the hedges next. Also alternate which side of the body you use. Pull with your right hand, then with your left.

Find a Row to Hoe

Even if you don't own an acre, a small yard, patio or a balcony can provide ample opportunity to dig, plant, and weed. Although your workout will be more limited if you garden on a balcony or patio, you can harvest a fantastic crop of nutritious vegetables in a small space.

Keep these tips in mind:

To prevent muscle soreness, back pain, and repetitive strain injuries, warm up before starting and cool down after you are finished by walking and stretching.

- Use steady, smooth motions to avoid injury.
- Protect yourself from the sun by wearing sunscreen, long-sleeved shirts and pants, and a wide-brimmed hat.
- Drink plenty of water to stay hydrated, especially if the temperature and humidity are high.
- When picking up tools or lifting bags of soil, bend your knees and keep your back straight.

Gardening is Good for Your Brain:

Gardening requires you to use your head and your creativity. The time spent planning the garden and researching different plants is a great brain workout. Gardening gives us a chance to be creative. You can let your personality shine through in your garden.

Gardening connects you with people. It's like walking down the street with a new puppy. Everybody talks to a gardener. It's also a great activity to do with kids. Give them a section of the garden all their own. Some of the best lessons can be learned in the garden such as delayed gratification and not to leave a rake on the ground with the head pointing upwards.

Gardening connects you with nature and the rhythm of life. Gardening requires you to live on garden time. We all could use a lesson in slowing down. Studies have revealed just viewing a garden or nature has healthy psychological benefits.

Gardening can be especially beneficial for people with special needs or those recovering from illness. Gardening promotes an increased range of motion, develops eye-hand coordination, improves motor skills and increases self-esteem. Over the past few years, special tools and garden designs to make gardens more accessible have become readily available.

Have fun gardening. Relax and remember your garden doesn't have to be picture

perfect. Resolve to have a garden this year. Whether it's a small plot on your balcony or an entire acre, you will be healthier for it. Remember, "Gardening is a labor of love. A treadmill is just labor." Can you dig it?

Oh and by the way, "I don't have enough space," is no longer a valid excuse for not gardening. This book is dedicated to educating fellow gardeners in both the cities and rural areas alike in the art of vertical gardening. With the tips in this book, you can produce enough vegetables and fruit to fully support a single person in as little as 2 square feet of floor space... Just by growing vertically

II. What is Vertical Gardening?

Imagine if you would, a world where vegetables and fruit all climb, twine and grow upward, creating beautiful and bountiful landscapes that save space, require less effort, produce high yields, and reduce pest and disease problems. Whether your goal is self-reliance or the simple satisfaction of growing your own foods, a bountiful vegetable and fruit harvest can be yours regardless of the amount of space you have. I'll show you how to transform whatever available space you have into grow-up or grow-down gardens with just a few inexpensive supplies that you may even be able to get for free, if you know where to look. Vertical gardening is a contemporary,

nearly effortless, and highly productive growing system that uses a wide variety of plants in both small and large garden spaces. There are hundreds of varieties of vegetables and fruits that are perfect for vertical gardening.

One of the greatest achievements of vertical gardening is that it almost guarantees better results from day one, by reducing both the amount of space required and the work needed to prepare new beds. Because plants in a vertical garden are separated from regular soil, arduous chores like weeding, watering, fertilizing, and controlling pests and diseases are reduced to a minimum. Yields, however, are increased, especially with vegetables like beans and tomatoes. A vining beanpole will out produce a bush bean nearly tenfold. Moreover, a vine growing vegetable is capable of continuous yields. A bush variety, by contrast, will exhaust itself as little as two weeks.

- If this is your first attempt at gardening, I would highly recommend that you stop here and review the section titled Green Thumb 101 in order to familiarize yourself with the basics of gardening.

What Are the Benefits of Growing Vertically?

Growing vegetables vertically will forever change the way you normally think of growing plants in rows and beds. If you're

one of the millions of people who want to experience gardening for the first time, one of the millions of gardeners looking for easier and more rewarding ways to garden, or one of the millions of gardeners who have given up all hope of gardening because of substandard results, consider some of the incredible benefits of vertical gardening:

- Growing plants up instead of out uses less resources and a much smaller footprint
- Little to no soil preparation or digging from Day 1
- Plant more variety in less space
- Less weeding in vertical beds, spaces, and pots
- Many space-saving container and stacking options
- Fewer maintenance chores
- Superior air circulation and less risk of plant diseases and infestations
- Easier tending and harvesting, no more bending over and searching through row upon row of plants for the few vegetables that are ripe
- Larger yields in less space

Vertical gardens can, under the right conditions, be planted at any time of the year and can bear a harvest year round. This unbinds you from seasonal planting and affords you the ability to have your favorite out of season produce at your fingertips.

The biggest mistake gardeners make in planting a garden is starting too large. After digging the soil in a large plot and planting a traditional garden in long, straight rows, summer days get hot and humid, encouraging a daily onslaught of weeds and creating a daily need for plant watering. Even the most devout gardener tends to get busy with other activities, and it becomes a challenge to find enough time to tend to the garden on a daily basis.

Are There Any Disadvantages to Vertical Gardening?

As with almost anything you do, there are a few drawbacks to vertical gardening. A vertical garden is removed from the ground level “natural” soil, and as such it is not allowed some of the perks that come with a traditional garden. Vertical gardens are much more easily affected by temperature than a traditional garden. A traditional garden has a vast surface area in which to spread out temperature changes, and as such has a relatively constant temperature throughout the day. Plants in a traditional garden are also afforded a wider root system that can spread out and pull nutrients and water from the surrounding soil, while a vertical garden is limited to only the soil in its “pocket.” With this being the case, you must be vigilant about watering your vertical garden, and you must also use a liquid fertilizer or a compost tea on your garden

frequently. In hot months with a lot of sun, this may require you to water your vertical garden a minimum of once per day.

What Can be Used to Create a Vertical Garden?

The beauty of vertical gardening is that almost anything can be used to create your garden. Many household items that we carelessly toss away can be instantaneously turned into a vertical garden. Some items that I have used to create vertical gardens include:

Old soda bottles (they work great to grow herbs in on your windowsill)

5 gallon buckets left over from home renovations

50-gallon drums (just make sure they are really well cleaned out and, if you can, make sure they contained food grade materials)

Wooden barrels

Traditional flower pots, be they plastic, ceramic or terracotta, work fantastically (you can purchase or make your own stand to increase the amount of gardening space you have).

Old gutter systems (preferably for shade loving plants or for indoor planters, as the metal can become excessively hot and cook your plants). Basically, anything that can hold soil can be turned into a garden. Vertical gardening is a perfect solution for the gardener on a budget.

When Growing Vertical it is Important to Be Creative in Your Planning

A combination of containers, shelves, and hanging baskets works really well to create a complete garden in a small space such as a patio or balcony.

If you can tackle a project like building a frame with cross-supports and built-in shelves, this also works quite well and can be an attractive feature in your landscape or on the deck or patio.

Below are the plans for my personal favorite Do-It-Yourself vertical garden. Feel free to take this idea and make it your own. Like I said, if it can hold soil, plants can grow in it.

PVC Pipe Vertical Garden:

Construction Time 30 minutes - 1 hour



Materials Needed:

- Several 4-6 feet long sections of 4 inch diameter PVC: *unless you can find it scrapped, I recommend using the 4" pipe as the 6" can be rather costly)
- Potting soil and compost: You will want to be sure to use soil crystals or moisture control potting soil to help with your watering needs.
- Plant selection: The most important part of your vertical garden is the plants you choose. I recommend seedlings as these will provide a much quicker harvest and you will avoid the frustration of planting bad seeds. If you have a very limited amount of space, you can go to your local nursery and find plants that are considered to be a mini or dwarf variety. These will produce smaller fruits

and vegetables but will also have smaller plants, and they taste just the same as the larger ones.

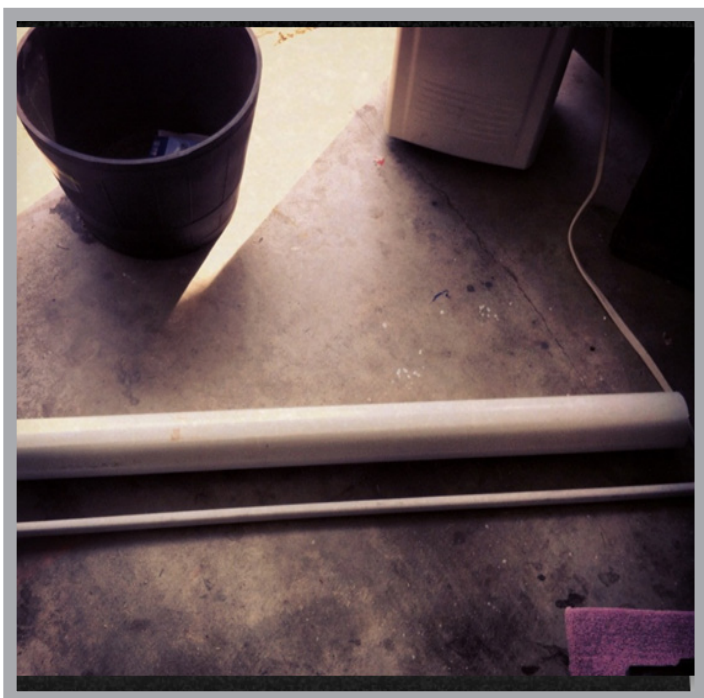
- Irrigation: I usually use a smaller pipe with holes drilled in it to disburse the water throughout the planter. However a heavy watering from the top will



eventually drip down to your lower plants. If you choose to use the small pipe method, I have found it beneficial to fill the pipe with a sand and gravel mixture to help slow down the water and keep from forming a pool at the bottom of your planter.

Tools Required:

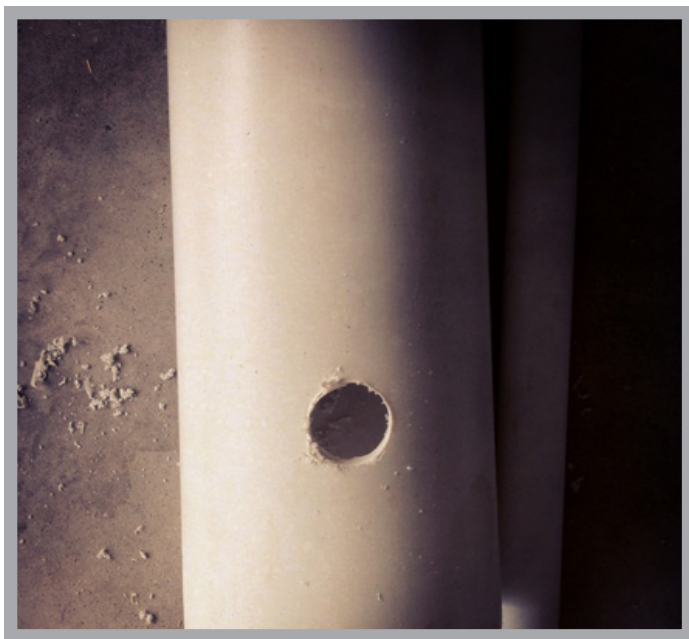
- Hole saw or a jigsaw
- Drill bits
- Electric drill
- Safety Goggles
- Gloves
- A planter bucket or 5 gallon bucket (you can also bury the pipe directly into the ground if you have the room)
- Furniture dolly to make the planter portable
- Sand Paper



Step 1: Choosing your pipe

The first step in building your vertical garden is deciding just how vertical you want to grow. I recommend that your top plant be just about at eye level, as any higher would make watering and harvesting difficult. The width of the pipes that you use depends on how much space you have, how much space you want between each plant and how much you want to invest in your vertical garden. If you can find scrap PVC pipe, then your garden will be almost free; just be sure it is scrap and not used PVC as there can be leftover chemical residue or waste on them. 4" PVC pipe is very economical; you can get a 10 foot length of it at the local home improvement store for around \$10.00. This works well for me as I typically make my planters around 5 feet tall so that I can create two planters out of one pipe. You can cut the pipe to any length you want, depending on your specific height restrictions. If you decide to plant the pipe, it must have at least $\frac{1}{4}$ of its height planted.

For example if you want the final height of your pipe to be four feet above ground, you will need to have a minimum of one foot below ground, which means that the total height of the pipe will need to be 5 feet. The same theory applies if you are planting in a 5 gallon bucket. However you can also build a stand or hang your garden



Step 2: Cutting out the holes

****Safety first, always wear safety glasses and gloves!** PVC can cause major eye irritation and if you breathe in the dust it can cause internal bleeding**



If you are planting the vertical garden in a bucket or directly into the ground, measure the height of the pipe and mark it with a line that shows the depth to which the pipe will be buried. For 4" pipe, I recommend only one hole per side, or staggering the holes to allow enough space for the roots to grow.

For 6" pipes, you can have up to 2 holes in each row depending on the root depth of the plants you choose. The size of the hole is dependent upon on plant type and size. I used 2" holes for this planter.

For vegetables, you will need to mark a hole roughly every 12." A quick tip to help make sure your holes are in a straight line, stretch out a piece of twine or tape from one side of the pipe to the other (make sure it is perpendicular to the top and bottom!), and make sure that you make each hole above the ground level line you made earlier. I also like to drill a smaller hole 2 inches above the bottom of the planter to allow drainage, while still keeping a small reservoir of water available to your plants in the bottom portion of the garden (for this one I used a single $\frac{3}{4}$ " hole, see the photo on the left). This is really only necessary if you are planning on hanging the vertical garden instead of planting it.

When cutting your holes there are several options, depending on what you have available:

- If you are using a hole saw, simply place the drill guide at the middle of your marking and drill through.
- If you are using a jigsaw, you will need to draw a guide for your hole (making a square or rectangular hole is the easiest method when using a jig saw). I usually print or trace the size I want on a sheet of paper and then draw the outline directly onto the pipe with a permanent marker.

- At each corner of the guide that you traced onto the pipe, drill a hole slightly larger than the size of the jigsaw blade you are using.
- Place the blade of the jigsaw into one of the pilot holes that you drilled and follow your guide lines.
- You will want to sand down any holes you made to make sure they are not jagged. Having jagged edges on your holes can damage your plants and irritate your skin.

Step 3: Stabilizing your vertical garden

If you are planting your garden in a bucket; simply place the pipe in the center of the bucket and fill around it with dirt, then pack it in quite well and water it to help form a nice pocket for your vertical pipe. You can also place a few large pebbles in the bottom of the pipe to help increase the weight and lower the center of gravity. If

you are planting the pipe into the ground, dig a hole that is slightly wider than your pipe and make sure it is the same depth as your ground level line that was marked earlier. Place the pipe in the ground and pack the space around the tightly with leftover soil. If the ground is soft where you are planting the pipe, place pebbles and heavy rocks inside the pipe up to the ground level line to help weigh the planter down. You may want to place plenty of rocks around the outside of the pipe to keep it from toppling over.



Step 4: Watering system

There are 2 common ways to water a vertical garden.

- The first way is to simply water the garden from the top and allow it to trickle down naturally. This method is ineffective unless you have very sparse soil and I don't recommend it unless you are planting a very short vertical garden.



- The second method is the one that I use. I take a smaller PVC pipe (the one pictured is $\frac{3}{4}$ ") and a small drill bit to drill irrigation holes. I like to make these in a spiral motion down the length of the PVC pipe. I then place the pipe in the center of the larger pipe just when I am about to fill the larger one with soil.

I then like to fill the small pipe with sand to slow down the trickle effect of the water. Once this system is in place I can either take a water hose with a slow trickle or simply hold it over the irrigation piping for heavier watering, or I can take my watering can and pour it directly in it for a light watering.



Step 5: Filling the pipe and planting plants inside.

This is the messy part. Fill the larger pipe with the potting soil until you reach the bottom of the first hole. For best results you should fill the area with the hole with a mixture of compost and soil (be careful not to add too much compost as this can cause a chemical burn on your plants roots) and poke a hole with your finger in which to place your first plant. Next, cover that plant with the potting soil until you reach the next hole. Repeat these steps as needed until you



reach the top. When you plant you need to keep in mind that each plant has a unique growing pattern; plants like cucumbers and strawberries tend to grow in a downward fashion, so you will want to plant them near the bottom or they will cover and choke the other plants in your vertical garden.



Step 6: Enjoy the fruits of your labor!

After a little time, some TLC, plenty of sun, water and nutrients, you will have a bountiful harvest of whatever delicious produce you desire. Below are a couple of vertical gardens that I have made (the one on the left is lettuce and the one on the right are some delicious strawberries).

Tips

- Make sure the planter gets sun from all four sides, or at least as much as possible. It is best for the planter to face south as this will make the most of your available sunlight.
- Strawberries work well in a vertical garden and are great for indoor planting.
- If you are worried about making a mess when filling the pipe with soil, I recommend using a large funnel to keep it from falling out around the sides. To keep the soil from falling out of the holes you can wrap plastic or any type of fabric around the holes and remove it when finished (I like to use old t shirts tied with a simple overhand knot). For a more permanent solution you can line the inside of the pipe with burlap and fill with soil. When you are ready to plant simply cut a small x in the burlap and place your seed or seedling into the soil. Burlap is

biodegradable and will help hold moisture in the pipe.

Another amazingly simple vertical garden is made simply by using a 55 gallon drum or a trash can. It uses the same steps as the above plans except it utilizes much more

space. These will be quite heavy when filled so you may want to mount the drum or trash can onto a heavy duty dolly, this will allow you to move the planter around for easy watering and it can be moved as the season goes on to allow the maximum amount of sunlight possible. The open top design also allows you to install a support system and an area to plant your tomatoes, green beans and any other plant that has a natural need to climb. Remember to install the support system **before** or at the time you plant the vegetable, doing so later may cause irreparable root damage.

If you do decide to use a drum, make sure that you know what was kept in it. I only use drums that contained food grade materials and only after they have been cleaned and disinfected.



If you feel that creating your own vertical garden is too much of a challenge, that shouldn't stop you from vertical gardening. There are plenty of commercially available vertical gardens. Keep in mind that they will be quite a bit more expensive than creating your own.



Types of Plants that Thrive in Vertical Vegetable Gardens

Now that you know how to build a vertical garden, what exactly should you plant in it?

The vegetables listed below are great candidates for any space-saving garden regardless of if it is a raised bed, in-ground, hanging, or container garden. Simply plant seeds or seedlings as usual, but remember to install the support at the time of planting. Attempting to install the support system at a later time will be much more difficult, and more than likely cause damage to the plants root system and vines. (I unfortunately learned this the hard way!)

Climbing Plants:

- Cucumber

- Squash (Acorn or Butternut)
- Tomato
- Green Beans
- Peas
- Lima Beans

Each of these will need support system such as trellis or frame to climb upward.

Non-Climbing Plants:

- Peppers
- Lettuce
- Radishes
- Onions
- Eggplant
- Potato (Regular or Sweet Potato in a container)
- Parsley
- Herbs

These do not need a support system, but can be included in any vertical garden.

Where is it best to Grow Up?

As with any garden, finding the best location for growing is one of the most important keys to your success.



- The majority of vegetable plants require a minimum of 6 hours of sunlight per day.
- Place your garden near a convenient source of water. With proper advanced planning, you can design your garden so that all you need to do is turn on the faucet for a few minutes to provide adequate water to all of your plants.
- Unless you are planting shade-loving vegetables, stay away from trees and shrubs. They will shade your plants and compete with your garden for water.
- Locate your garden facing south if possible; this will insure that they receive ample sunlight.

If you do not have access to a sunny location, broad leafy vegetables such as lettuce and spinach will grow quite well in shade or partial shade.

Choose your favorite vegetables for your first vertical garden. Doing so will make all of your labor much more rewarding as the end result will be vegetables that you love to eat. Start small to avoid becoming overwhelmed. Remember that each year, as your skills grow, you can add more plants and varieties.

One of the best features about using a vertical or container garden is that, if you decide to plant indoors, be it in a garage, spare bedroom, or even a simple closet, you can disregard all seasonal planting. That's

right, since you control the temperature in your home, you can help to maintain opportune growing temperatures for your edibles! If you utilize growing lights you don't even need to have sunlight to produce great vegetables for your family. With a bit of ingenuity you can even create your own for just a fraction of the cost. Should you choose this route, you need to make sure that either by window or artificial lighting, you are still giving your plant the correct amount of light each day. You will also want to check to see if your plant has a desired humidity range and you may need to adjust the humidity in your growing area accordingly. A humidifier and an improvised green house can help to keep your indoor planting from affecting the rest of your house. If you choose multiple smaller containers that remain portable, you can create a hybrid garden that you can move outside during opportune growing weather and, should the weather turn inclement, you can quickly move the planters indoors to a safe growing environment. If you decide to use a container or create a vertical garden you want to make sure to follow these 5 key steps to maintain a healthy garden.

5 key steps to help a garden Grow UP healthy:

- Water daily

- Fertilize often
- 6 hours of sunlight MINIMUM
- Start with a good soil
- Use plenty of compost

Speaking of Compost...

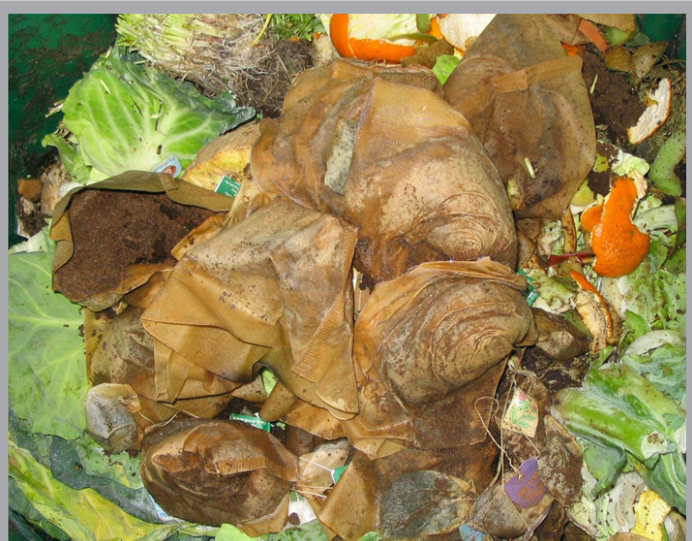
III. Do you smell that... ?

Not if you're doing it right! You heard me correctly! The misconception that most everyone has (including me at one point in time) is exactly that, a misconception. Most people think of compost as a stinking pile of rotting trash just steaming away in a tub in some far off corner of the garden. However when done correctly compost gives off an almost...pleasant, earthy aroma. So why should you compost? Wouldn't it be much easier to just buy a bag of dirt or manure? Can't I just use that little green can of Miracle Grow to help my plants bloom? Sure, you

can absolutely do that and it would not take nearly as much time or effort. However, much like many other things in life, you get what you put in; and in this case I mean that in the most literal sense of the meaning. Using premade potting soil, manure, and miracle grow will be fine for potted flowers and other items that you don't plan on eating. However growing an edible garden is a very contained cycle. Anything that you put into the garden will end up inside you. So if you are okay with putting chemically-altered potting soils down on your salad greens and spraying your tomatoes with a mist of chemicals that are hard if not impossible to pronounce... by all means eat up! Personally, I like to have a little more control over what goes into my garden and subsequently, what goes into me.

So what is composting anyway?

At the most basic level, the process of composting simply requires making a heap of wetted organic matter (leaves, food waste) and waiting for the materials to break down into humus after a period of weeks or months. Modern, methodical composting is a multi-step, closely monitored process with measured inputs of water, air and carbon- and nitrogen-rich materials. The decomposition process is aided by shredding the plant matter, adding water and ensuring proper aeration by regularly turning the mixture. Worms and fungi further break up



the material. Aerobic bacteria manage the chemical process by converting the inputs into heat, carbon dioxide and ammonium. The ammonium is further converted by bacteria into plant-nourishing nitrites and nitrates through the process of nitrification.

If that sounds too complicated let me “break it down” for you. Essentially in order to compost something you need 3 things.

- Organic Green matter (kitchen scraps)
- Organic Brown matter (dried leaves, dead grass)
- A container with a lid (Typically plastic or wood)

Organic “Green” Matter:

You can compost much more than you may realize. Any food scraps and leftovers you would normally throw away or put in the garbage disposal can be composted, from pizza crusts to takeout noodles to the half popped popcorn kernels and bits at the bottom of the bag.

- Pasta, beans, rice, bread, cereal
- Vegetables, fruits, nuts, herbs, leaves, flowers
- Egg shells, orange rinds, grapefruit halves, nut shells, seed hulls

Anything of organic origin is perfectly suitable for composting, from pits and cores,

to seeds and skins, to liquids and moldy cheese. But you can also compost some unusual things. The key for composting is to make sure that what you are putting in the pile is something that has a reasonable chance of breaking down and the quicker it can break down the sooner you will have usable compost. As great as it is for getting rid of food scraps, you’ll need more than that for successful compost. Nitrogen is necessary to break down the scraps of food from a foul smelling sludge into the deep rich compost that will help your fruits and veggies grow strong. So where do we get nitrogen from? Grass clippings, green leaves and live pine needles are a simple and easily available source of nitrogen.

Bonus Tip, What Not to compost:

- Anything that will not break down in a reasonable amount of time, like old magazines, t-shirts, or any type of plastic (bags, cups, etc).
- Anything with toxic chemicals, like detergent, paint, or hair dye (this is a circular system and anything you put in the compost will end up back in you, or it can kill off or severely impair the balance in the permaculture).
- Meat and animal byproducts other than milk or cheese. Butter; being fat, takes a long time to break down, and meat will just attract pests and insect infestation

that can quickly spread disease. The breakdown process going on in your compost bucket can also be hampered by the introduction of meat. Avoid fish, bones, and chicken skin; basically anything that you wouldn't want your cat or dog getting into should not go in the compost.

Organic Brown Matter:

Having green matter is a great start to your compost, but in order for it to become really successful compost, and in order for you to avoid the smell of rotting garbage, you need to balance the nitrogen out with carbon. Where do we get carbon from? That is simple, anything that is already dead and dried. Dried grass clippings, dead leaves, and brown pine needles all work just fine. The easiest way to equalize your compost and remove the odor is to add in equal amounts of dead, relatively dry "brown" matter for each layer of food compost or green matter. This usually means about once a week you'll need to add in some of Mother Nature's sheddings. The key is balance – don't think of this as a slimy food free for all. You want your compost to remain damp but not wet. It's as easy as grabbing some dead leaves from the sidewalk out front and tossing them in. Newspaper works too.

Whatever you decide to add to your compost pile, shred it! The smaller it is the quicker you'll have compost. If you fail to shred your

compost efficiently, your composting time can slow to a crawl.

Keep your compost near an area with good ventilation, but keep it out of the sun. Compost will be warm anyway because of the exothermic heat created naturally by the breaking down of the matter, but you don't want it getting too hot.

OH NO!! There are bugs in my compost?!

While at first it may make your skin crawl to think of all those creepy crawlies being so close to you, it is perfectly fine. They are actually helping by breaking down all of the organic matter into the beneficial rich dark brown soil we all know and love. Without these little critters it would be up to just bacteria and microorganisms to do the heavy lifting, and composting would take much longer.

What you do not want are cockroaches, potato bugs, flies and other large scavenger insects; these can spread nasty diseases. Worms, pill bugs and all those other tiny, hard-working soil critters are perfectly OK and, in fact, should be encouraged.

Bonus Tip: Give your worms a morning jolt

Coffee grounds create an acidic environment to help speed along the decomposition process... and worms love them.

Do It Yourself Compost Bin Ideas:

When most people think of compost bins,

they think of a pile of garbage fenced in with chicken wire or the large plastic (typically quite expensive) bins that are available at your local hardware store. While I admit the plastic bins definitely have the advantage in aesthetic looks, they don't really work any better. With a few inexpensive items, items that you may already have lying unused around your home, you can create a range of compost bins. Composting can be successfully done in a variety of sizes and shapes; the only thing that dictates how you compost is how much space you are willing to allot to this effort. Composting can be done under your sink or even on your counter if you live in an urban area with little to no extra space. If you have a little extra space, you can use a couple of plastic storage bins to compost up to 30 gallons at a time. Below are a few options that I have used for small space composting and all of these were done free with items I had at home.

Java Compost

I like to shop at Sam's Club for my coffee and as such I end up with these 1 gallon red plastic containers that used to end up in the trash. However, after



looking at some rather expensive counter top composting bins (around \$30.00 for ½ gallon container at Bed Bath and Beyond) I realized that my used coffee cans could do the exact same thing without buying the fancy container from the big box store. Since I drink coffee anyway, this container comes to me as a freebie. The size of this compost bin makes it able to be stored on your countertop under your sink or on top of the refrigerator. Also, I cannot stress this enough; remove or change the label and keep it far away from your coffee pot... that would not be the best way to wake up in the morning.



Storage bin compost/ Worm Farm

After I moved to a new place and unpacked, I had several plastic storage bins left over that I left stacked in a closet for a while. While browsing through some forums, I ran across an interesting idea and tried it myself. Take two of the plastic bins and one lid. Place a few bricks or a few 2x4 wood sections in the bottom of the first bin. If you use 2x4's or any



wood, make sure it is untreated to avoid the nasty chemicals in your compost. In the second bin you will poke or drill several holes (I put 1 hole every 3 inches around the edges and 4 holes in the middle). These holes will drain out the liquids created during the break down of the compost and keep it from becoming too soggy, which will ruin your compost.

Place the bin with holes in inside of the first bin. Ensure that the spacers you put in the bottom allow the second bin to sit flat and stable inside the first bin. You then shred some newspaper and give it a good dousing of water. Lay the moistened newspaper evenly along the bottom of the second bin. From here if you have enough compostable material (remember it's roughly a 50/50 mix of brown to green) to fill about an inch of the bin, you can spread it out and simply wait for nature to take its course. If you do not have enough material to start this, simply fill it with viable soil, peat moss, or store bought organic compost. You can also add worms if you choose. I prefer the red wiggler worms; they live well in close, highly populated conditions and don't burrow. They will also breed and you can eventually give them

away or sell them to fellow gardeners.

As a note; using this method is one of the easiest ways to get compost "tea." The holes allow the liquid that is produced during the breakdown of the organic materials to seep into the bottom bin, hence the reason for the spacers. Every couple of weeks or months you can pull the top bin off and drain out the "tea". Put this into a bottle and use it as a fantastic liquid fertilizer. It also works to prevent diseases when sprayed directly onto the plant.



Is it done yet?

You've started your compost, been adding to it for a few weeks.... Now how do you tell when it is... done?

The short answer is: When it looks and smells like dirt. When the biological breakdown of the organic material has reached its final stages, the compost will

look like the rich, dark soil that you buy in the bags at gardening supply store. Another way to tell if it is finished is if it no longer heats up after you turn it. The exothermal reaction will begin to wane as the compost reaches maturity.

Once there is insufficient bio matter to be broken down, no more reactions can occur to produce heat. However there will always be some matter to be broken down so eventually it just comes down to making a personal call on if your compost is “ready.” The typical process can take from several months up to a year to be completely ready, that being the case it is in your best interest to begin composting sooner rather than later. I also recommend starting a second batch a few months after your first one, so that you can rotate them out as they mature.

Another way to tell is to screen your compost. Give your compost pile a good turn, and then pour some into a screen made from chicken wire stapled into a small wooden frame. When sifted, if the majority of the compost falls through the chicken wire it should be safe to use. If you are utilizing the two batch method, sift the entire batch and then throw whatever did not fall through into the second bin. You can now reuse the first compost bin and start the process over again.

Composting is hard... and it would take me forever to make enough to use...

When deciding whether or not to make your own compost you might think that you couldn't possibly produce or use enough compostable material to make composting worthwhile. However, after a few months of research I was shocked at all the day-to-day items that that can become compost material. I have compiled a list of items that you might never think to compost... be warned some of them may sound a little gross.

75 things you wouldn't think to compost:

When it comes to composting most people simply think of kitchen scraps... However, the world of compost is much larger than orange peels and eggshells.

The following list is meant to get you thinking outside the box about your composting resources and is by no means a fully comprehensive list of compostable items. Not every item on the list is for everyone, and that is OK. With a little research and some trial and error, you can find hundreds if not thousands more items that can be added to this list. The main thing to remember is to think organically. If it can be broken down in nature it can be composted. Imagine how much trash we could keep out of the landfills if each

of us just decided to compost just a few household items.

From the Kitchen

1. Used coffee grounds and filters (worms dig this stuff)
2. Tea bags
3. Paper napkins
4. Pizza boxes, ripped into smaller pieces
5. Paper bags, torn or shredded into small pieces
6. Crumbs swept from the counter
7. Leftover plain cooked pasta
8. Leftover plain cooked rice
9. Stale bread
10. Used Paper towels
11. Stale saltine crackers
12. Stale cereal
13. Used paper plates (as long as they don't have a waxy coating)
14. Cellophane bags (be sure it's really Cellophane and not just clear plastic there **IS** a difference.)
15. Nut shells (except for walnut shells as

they can be toxic to plants)

16. Old or expired herbs and spices
17. Stale pretzels
18. Pizza crusts
19. Cereal boxes (tear them into smaller pieces first)
20. Wine corks
21. Moldy cheese
22. Melted ice cream
23. Old jam or preserves
24. Stale beer and wine (these can attract slugs so be careful)
25. Paper egg cartons (torn into small pieces)
26. Toothpicks
27. Bamboo skewers
28. Paper muffin pan liners

From the Bathroom

29. Used facial tissues
30. Hair from your hairbrush
31. Toilet paper rolls
32. Old exfoliator's and rags (only 100% cotton or bamboo and they must be

shredded)

- 33. Nail clippings
- 34. Urine (this contains a high amount of nitrogen and is very good for compost)
- 35. Cotton balls (100% cotton only)
- 36. Cotton swabs (100% cotton with cardboard sticks)

Personal Items

(You may want to bury these items deep in your compost pile to keep prying eyes from seeing your unmentionables)

- 37. Cardboard tampon applicators
- 38. Latex condoms

From the Laundry Room

- 39. Dryer lint
- 40. Old/stained cotton clothing—ripped or cut it into small pieces
- 41. Old wool clothing—ripped or cut it into small pieces

From the Office

- 42. Any paper documents, bills, or junk mail that you have shredded into small pieces (make sure it is only matte

paper, no plastic or glossy coating)

- 43. Envelopes (be sure to cut out the plastic window)
- 44. Pencil shavings
- 45. Sticky notes
- 46. Business cards (as long as they're not glossy)
- 47. Receipts

Around the House

- 48. Dust and hair from your vacuum bag or bin
- 49. Shredded newspaper
- 50. Old subscription cards from magazines
- 51. Trimmings from houseplants
- 52. Dead houseplants and their soil
- 53. Dead and dried flowers from floral arrangements
- 54. Potpourri (only 100% natural potpourri)
- 55. Spent matches
- 56. Ashes from the fireplace, barbecue grill, or outdoor fire pit

Party and holiday left overs

- 57. Wrapping paper rolls
- 58. Paper table cloths
- 59. Crepe paper streamers
- 60. Latex balloons
- 61. Raffia ribbon
- 62. Excelsior (wood wool)
- 63. Old Jack o' Lanterns
- 64. Decorative Hay bales
- 65. Real holiday wreaths
- 66. Your Christmas tree. (be sure to cut it into smaller pieces or use a wood chipper- you can also find a ton of these after new year just lying around the street if you feel up to it you will have more than enough compostable materials from this alone.)
- 67. Evergreen garlands

From Fido

- 68. Shed fur and nail trimmings from grooming
- 69. Droppings and bedding from your rabbit/gerbil/hamsters, etc.

- 70. Newspaper/droppings from the bottom of the bird cage
- 71. Feathers
- 72. Alfalfa hay or pellets
- 73. Rawhide dog treats
- 74. Fish food
- 75. Dry dog or cat food

The longer that you compost, the more likely it will be for you to take a second look at anything that you are about to throw in the trash. "Can I compost this?" has become a frequent question in my house. And, as you can see, it's surprising how often the answer is yes!

When your compost is ready there is one thing you need to know before your start planting...

IV. Know When to Hold 'Em and When to Sow 'Em

When it comes to gardening and growing luscious, tasty vegetables... timing is everything.

Matching your vegetables to your season duration is vital if you want to have a successful crop. If your growing season is approximately 90 days, growing anything

that typically matures in that amount of time or less should be relatively easy. If you push the envelope on your planting date, be ready to help that plant with an early start indoors or some extra coddling in the fall.

First, though, you need to have an idea of the growing seasons for your zone and the conditions that you will have to contend with (for info on growing seasons by zones; see below). In most cases, the vegetable growing season is summer, surrounded by late spring and early fall. The start of a growing season is typically indicated by the last spring frost date and the end by the first autumn frost date (although a few plants, like parsnips and kale, can survive being exposed in the cold longer and even obtain a better flavor). Your local weather station should broadcast the frost date every spring (for the last frost) and autumn (for the first frost), or you can contact your local Cooperative Extension Office directly and ask them for the expected first and last frost dates. The dates will differ slightly from one year to another, so be sure that you keep track of this if you intend to become a perpetual gardener. If your growing period is lengthy and warm, you can get started earlier in the season and perhaps even plant two or three rounds of crops in a single season. Keep in mind though that you may have to contend with sweltering,

dry conditions at the peak of summer, as was the case for most of the South during the summer of 2011. This is extremely stressful for a number of vegetable plants and you will need to mulch them and provide additional water on a daily basis.

If your growing period is short-lived, you can still have an extremely abundant garden. Choose only vegetables that mature quickly, and attempt a few season extending methods. Here are two favorites:

Start seeds indoors first or plant them inside a cold frame, which is basically a box covered with glass or plastic that protects smaller plants from excessive cold and wind. Raise them to seedling size in the cold box until putting them out in the ground is safe.

Use plastic coverings (from row-cover sheeting or tunnels to cones to recycled milk jugs to “water wall” wraps) to keep plants and their immediate soil at a warmer temperature and more desirable humidity range.

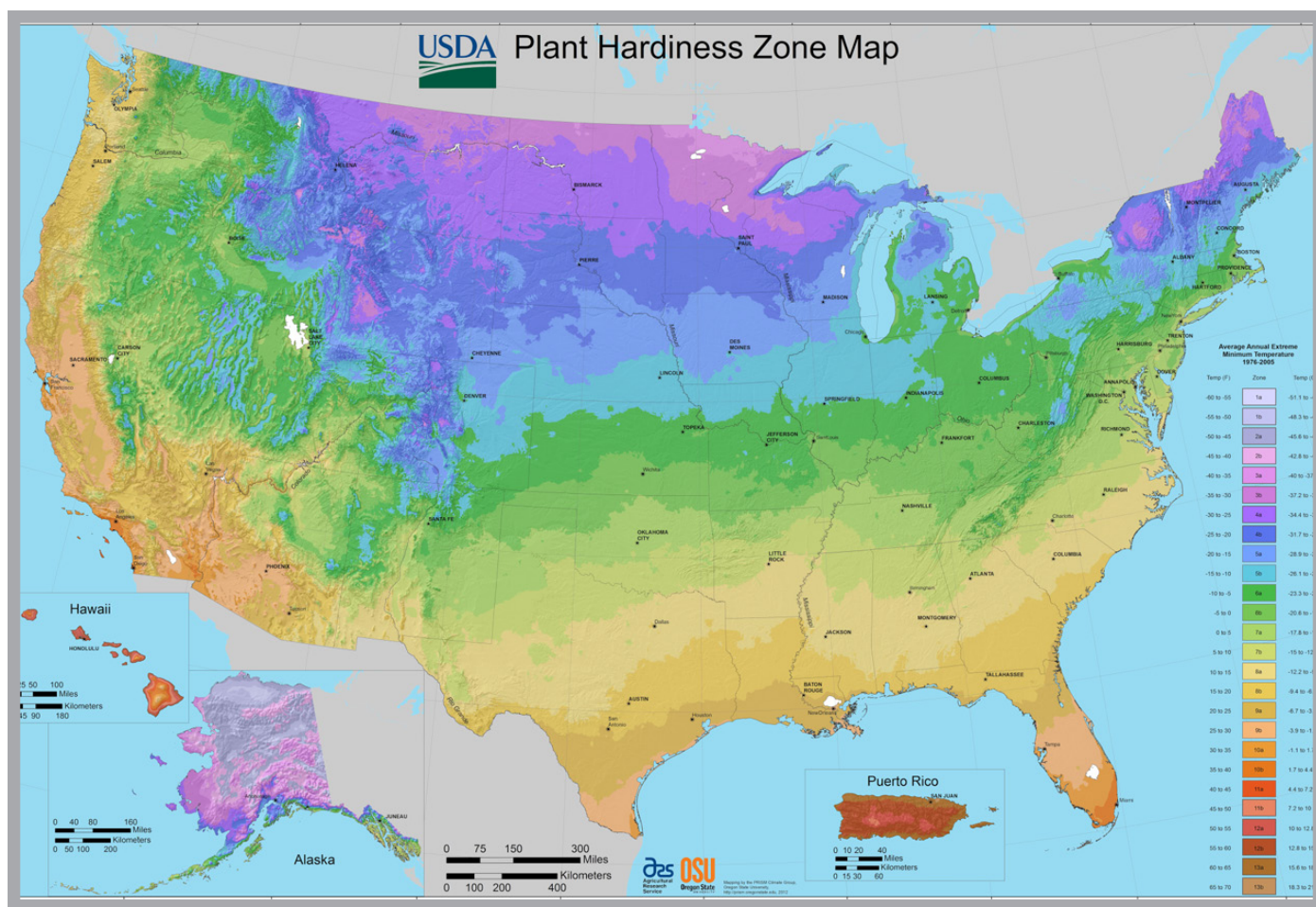
You can even produce some veggies during the winter. In light climates, you can have kale, carrots, leeks, and root vegetables all winter long. If you have the available space, please refer back to the vertical gardening section to create an indoor garden that completely disregards the seasonal planting schedule.

Use the guide below to help you decide what to plant and when to plant it.

Simply find your location on the map and reference the color coded hardiness zone for your area. The tables following the map represent a generalized list of plants that will produce viable vegetables and fruits in that hardiness zone.*

Before you get into the details on how deep to plant your seeds and when to plant them... you may want to make sure you have the basics down first... skip this section and review Green Thumb 101.

*** Please note that this is only a hardiness zone map for the U.S.A. If you live outside of this area please consult your local department of agriculture for the proper hardiness zone in your area.**



Vegetable	Start plants this long before planting date for your region	Zone 1	Zone 2	
Artichokes (globe)		Aug.-Oct.	Aug.-Nov.	
		May-June	April-June	
Asparagus	1 year	March-April	Feb.-March	
Beans (lima)	not suitable	not suitable	May-June	
Beans (snap)	not suitable	May-June	May-July	
Beets	not suitable	March-June	March-June	
Broccoli	6 weeks	May-June	March-Aug.	
Brussels sprouts	6 weeks	May-June	May-July	
Cabbage	6 weeks	Jan.-April	April-June	
		July-Sept.		
Cantaloupes	4 weeks	not suitable	May	
Carrots	not suitable	Jan.-June	March-July 15	
Cauliflower	6 weeks	Jan. & June	April-July 15	
Celery	9 weeks	March-June	March-July	
Chard	not suitable	Feb.-May	April-July	
Chinese cabbage	4 weeks	July-Aug.	August	
Chives	6 weeks	April-May	March-May	
Corn (sweet)	not suitable	April-May	April-June	
Cucumbers (slicing)	4 weeks	April-June	May-June	
Cucumbers	4 weeks	May	May-June	
(pickling)				
Dill	not suitable	May	May	
Eggplants	9 weeks	not suitable	May	
Endive	6 weeks	March-July	April-Aug. 15	

Vegetable	Start plants this long before planting date for your region	Zone 1	Zone 2	
Garlic	not suitable	Sept.-Oct.	Sept.-Feb.	
Kale	not suitable	May-July	May-July	
Kohlrabi	not suitable	July-Aug.	April-Aug. 15	
Leeks	not suitable	Feb.-April	March-May	
Lettuce (head)	5 weeks	Feb.-July	April-July	
Lettuce (leaf)	5 weeks	Feb.-Aug.	April-Aug.	
Okra	8 weeks	not suitable	not suitable	
Onions	10 weeks	Jan.-May	Mar.-May	
Parsley	10 weeks	Dec.-May	Mar.-June	
Parsnips	not suitable	May-June	April-May	
Peas	not suitable	Jan.-Aug.	Feb.-May	
Peppers	10 weeks	May	May-June	
Potatoes (sweet)	6 weeks	not suitable	not suitable	
Potatoes (white)	not suitable	Feb.-May	April-June	
Pumpkins	4 weeks	May	May	
Radish	not suitable	All year	March-Sept.	
Rhubarb	Crown pieces	Dec.-Jan.	March-April	
Rutabagas	not suitable	June-July	June-July	
Spinach	not suitable	Aug.-Feb.	April & Sept.	
Squash (summer)	4 weeks	May	May-June	
Squash (winter)	4 weeks	May	May	
Tomatoes	8 weeks	May-June	May	
Turnips	not suitable	Jan. & Aug.	Apr.-Sept.	
Watermelons	4 weeks	not suitable	May	

Crop	Start seed indoors	Plant seed or plant outdoors	Depth of seeding (inches)	
		Zone 3		
		Zone 4		
Asparagus		April 15 - May 1	6	
Beans, snap (bush)		May 15 - July 1	1½ - 2	
Beans, snap(pole)		May 15 - July 1	1½ - 2	
Beans, dry shell		15-May	1½	
Beans, lima		May 15 - June 10	1½	
Beets		April 15 - July 1	½ - 1	
Broccoli	March 1 - 15	April 15 or June 1	¼ (indoors)	
Brussels sprouts	March 1 - 15	April 15 or June 1	¼ (indoors)	
Cabbage, early	March 1 - 15	April 1 - May 1	¼ (indoors)	
Cabbage, late	April 15 - May 1	1-Jun	¼ (seedbed)	
Cabbage, Chinese		1-Jul	½	
Carrots		April 15 - June 15	¼	
Cauliflower	March 1 - 15	April 15 or June 1	¼ (indoors)	
Celery	Feb. 15 - March 1	15-May	1/8 (indoors)	
Chard, Swiss		1-May	1	
Collards		15-Apr	¼	
Cucumbers		May 1 - June 15	1	
Eggplant	March 15 - April 1	1-Jun	¼ (indoors)	
Endive		15-Apr	½	
Garlic		Oct. 1 - Nov. 1	3-4	
Horseradish		April 15 - May 1	6 (roots)	
Kale		April 15 - July 15	½	

Crop	Start seed indoors	Plant seed or plant outdoors	Depth of seeding (inches)	
Kohlrabi		April 15 - June 1 or	$\frac{1}{2}$	
		Aug. 1 - 15		
Lettuce, leaf		April 15 - June 1 or	$\frac{1}{4}$	
		Aug. 1 - 15		
Lettuce, head	March 1 - 15	April 15 - May 1	$\frac{1}{4}$ (indoors)	
Muskmelon		May 15 - June 1	1	
Okra	March 15 - April 1	1-Jun	$\frac{1}{2}$ (indoors)	
Onion seeds		15-Apr	$\frac{1}{2}$	
Onion, transplants	Feb. 1 - 15	15-Apr	$\frac{1}{2}$ (indoors)	
Onion, sets		15-Apr	1-2	
Parsley		April 15 - May 1	$\frac{1}{4}$	
Parsnips		May 1 - 15	$\frac{1}{2}$	
Peas		April 10 - May 15	$1\frac{1}{2}$	
Pepper	March 15 - April 1	1-Jun	$\frac{1}{2}$ (indoors)	
Potatoes, Irish		April 15 - June 1	4 (each piece)	
Potatoes, sweet	April 15 (roots)	1-Jun		
Pumpkin		May 10 - June 1	1-2	
Radish		April 10 - June 1 or	$\frac{1}{2}$	
		Aug. 1 - 15		
Rhubarb		April 15 - May 1		
Rutabaga		May 15 - June 15	$\frac{1}{2}$	
Spinach		April 15 or Aug. 1 - 15	$\frac{1}{2}$	
Squash, summer		May 10 - June 1	1	

Crop	Start seed indoors	Plant seed or plant outdoors	Depth of seeding (inches)	
Squash, winter		May 10 - June 1	1	
Sweet corn		May 10 - July 1	1-2	
Tomato	April 1 - 15	May 15 - June 1	¼ (indoors)	
Turnip		April 15 or Aug. 1	½	
Watermelon		May 15 - June 1	½	

Crop	Spring Planting Dates	Fall Planting Dates	Depth of seeding (inches)	
		Zone 5		
		Zone 6		
Asparagus	Apr 5 - 25		6 in.	
Bean bush	Apr 25 - May 30	July 25-Aug 5	1-1½ in.	
Bean pole	May 10 - 20		1-1½ in.	
Bean lima	May 10 -25		1-1½ in.	
Beet	Apr 1 - 15	Aug 1 - Sept 25	1 in.	
Broccoli	Mar 25 - Apr 5	Sept. 25 - 30	-	
Cabbage	Apr 1 - 20	Sept 20 -30	-	
Cantaloupe	May 10 - 20		1½ in	
Carrot	Mar 25 - Apr 10	Sept 20 -30	½ in.	
Cauliflower	Apr 1 - 20	Sept 20 - 30	-	
Collard	Mar 20 - Apr 10		½ in.	
Corn	May 1 - July 20		2 in.	
Cucumber	May 10 - 30		1½ in.	
Eggplant	May 15 - 25		-	

Crop	Spring Planting Dates	Fall Planting Dates	Depth of seeding (inches)	
Kale	Mar 25 - Apr 5		½ in.	
Kohlrabi	Apr 1 - 15	Sept 20 - 25	½ in.	
Lettuce	Apr 1 - May 15	Sept 1 - 15	½ in.	
Mustard	Mar 25 - May 1	Aug 1 - 30	½ in.	
Okra	May 10 - 25		1 in.	
Onion (mature)	Mar 25 - Apr 15	Sept. 1-Dec. 31	¾ in.	
Peas- garden	Mar 25 - Apr 10		1½-2 in.	
Peas-southern	May 1 - 15	-	1½-2 in.	
Pepper	May 15 - 30	-	-	
Potato-Irish	Apr 1 - 15		5 in.	
Potato-sweet	May 15-June 5	-	-	
Radish	Mar 25 - May 1	Aug 1- 20	½ in.	
Spinach	Apr 1 - 20	Aug 10 - Sept 20	¾ in.	
Squash bush	May 15 - 30		1½-2 in.	
squash winter	May 15 - 30	-	1½-2 in.	
Tomato	May 15 - 30		-	
Turnip	Mar 25 - May 1	Aug 5 - Sept 20	½ in.	
Watermelon	May 10 - 20		1½ in.	

Crop	Spring Planting Dates	Fall Planting Dates	Depth of seeding (inches)	
		Zone 7		
		Zone 8		
Asparagus	Jan. 15-Mar. 15	Nov. & Dec.	6 in.	
Bean bush	Apr. 1 - May 1	July 15-Aug. 20	1-1½ in.	
Bean pole	Apr. 1-May 1	July 15-Aug. 10	1-1½ in.	
Bean lima	Apr. 1 - June 1	July 1-Aug. 1	1-1½ in.	
Beet	Feb. 15-Apr. 1	Aug. 1-Sept. 20	1 in.	
Broccoli	Feb. 15-Mar. 15	Aug. 1-Sept. 1	-	
Cabbage	Jan. 15-Mar. 15	Aug. 15-Oct. 1	-	
Cantaloupe	Mar. 25-Apr. 20	Not recommended	1½ in	
Carrot	Jan. 15-Mar. 20	Aug. 20-Sept. 15	½ in.	
Cauliflower	Mar. 1-Apr. 1	Aug. 1-Sept. 1	-	
Collard	Feb. 1-Mar. 20	Aug. 1-Oct. 1	½ in.	
Corn	Mar. 15-June 1	June 1-July 20	2 in.	
Cucumber	Apr. 1-May 15	Aug. 20-Sept. 1	1½ in.	
Eggplant	Apr. 1-May 15	July 10-15	-	
Kale	Feb. 1-Mar. 10	Aug. 10-30	½ in.	
Kohlrabi	Jan. 15-Mar. 1	Sept. 1-Oct. 1	½ in.	
Lettuce	Jan. 15-Apr. 1	Aug. 20-Oct. 1	½ in.	
Mustard	Apr. 1-June 1	June 15-July 1	½ in.	
Okra	Jan. 1-Mar. 15	Sept. 1-Dec. 31	1 in.	
Onion (mature)	Jan. 15-Feb. 15	Not recommended	¾ in.	
Peas- garden	Apr. 1-Aug. 1	-	1½-2 in.	
Peas-southern	Apr. 1-June 1	-	1½-2 in.	

Crop	Spring Planting Dates	Fall Planting Dates	Depth of seeding (inches)	
Pepper	Jan. 15-Mar. 1	Aug. 1-Aug. 15	-	
Potato-Irish	Apr. 15-June 15	-	5 in.	
Potato-sweet	Jan. 15-Apr. 1	#VALUE!	-	
Radish	Jan. 15-Mar. 15	Sept. 1-Oct. 15	½ in.	
Spinach	Apr. 1-May 15	Sept. 1-Oct. 15	¾ in.	
Squash bush	Apr. 1-Aug. 1	Aug. 1-20	1½-2 in.	
squash winter	Mar. 25-May 1	-	1½-2 in.	
Tomato	Jan. 15-Apr. 1	June 1-Aug. 10	-	
Turnip	Mar. 20-May 1	Aug. 10-Sept. 15	½ in.	
Watermelon	May 10 - 20	Do not plant	1½ in.	

Crop	Zone 9	Zone 10	Zone 10b	Depth of seeding (inches)
		Zone 9	Warm Weather Crops	
		Zone 10		
Beans bush	Mar-Apr	Feb-Apr	Sept-Apr	1-2
	Aug-Sept	Sept.		
Beans pole	Mar-Apr	Feb-Apr	Aug-Apr	1-2
	Aug-Sept	Aug-Sept		
Beans lima	Mar-Aug	Feb-Apr	Aug-Apr	1-2
		Sept.		
Cantaloupes	Mar-Apr	Feb-Apr	Aug-Sept	1-2
			Feb-Mar	

Crop	Zone 9	Zone 10	Zone 10b	Depth of seeding (inches)
Corn sweet	Mar-Apr	Feb-Mar	Aug-Mar	1-2
	Aug	Aug-Sept		
Cucumbers	Feb-Apr	Feb-Mar	Sept-Mar	1-2
	Aug-Sept	Sept		
Eggplant	Feb-July	Jan-Mar	Dec-Feb	½
		Aug-Sept	Aug-Oct	
Okra	Mar-July	Mar-Aug	Aug-Sept	1-2
Peas southern	Mar-Aug	Mar-Sept	Aug-Apr	1-2
Peppers	Feb-Apr	Jan-Mar		½
	July-Aug	Aug-Sept	Aug-Mar	
Potatoes sweet	Mar-June	Feb-June	Feb-June	---
Pumpkin	Mar-Apr	Feb-Mar	Jan-Feb	1-2
	Aug	Aug	Aug-Sept	
Squash Summer	Mar-Apr	Feb-Mar	Jan-Mar	1-2
	Aug-Sept	Aug-Sept	Sept-Oct	
Squash Winter	Mar	Feb-Mar	Jan-Feb	1-2
	Aug	Aug	Sept	
Tomatoes Stake	Feb-Apr	Jan-Mar	Aug-Mar	½
	Aug	Sept		
Watermelon Large	Feb-Apr	Jan-Mar	Aug-Mar	1-2
	Aug	Sept		

Crop	Zone 9	Zone 10	Zone 10b	Depth of seeding (inches)
		Zone 9	Cool Weather Crops	
		Zone 10		
Beets	Sept-Mar	Oct-Mar	Oct-Feb	½ - 1
Broccoli	Aug-Feb	Aug-Jan	Sept-Jan	½ - 1
Brussels Sprouts	Sept-Nov	Oct-Nov	Oct-Dec	½ - 1
Cabbage	Sept-Feb	Sept-Jan	Sept-Jan	½ - 1
Carrots	Sept-Mar	Oct-Mar	Oct-Feb	½
Cauliflower	Jan-Feb	Oct-Jan	Oct-Jan	½ - 1
	Aug-Oct			
Celery	Jan-Mar	Aug-Feb	Oct-Jan	¼ - ½
Chinese cabbage	Oct-Feb	Oct-Jan	Nov-Jan	¼ - ¾
Collards	Feb-Apr	Aug-Mar	Aug-Feb	½ - 1
Endive/Escarole	Feb-Mar	Jan-Feb	Sept-Jan	½
	Sept	Sept		
Kale	Sept-Feb	Sept-Jan	Sept-Jan	½ - 1
Kohlrabi	Sept-Mar	Oct-Mar	Oct-Feb	½ - 1
Leek	Sept-Mar	Sept-Feb	Oct-Jan	½
Lettuce: Crisp	Feb-Mar	Sept-Mar	Sept-Jan	½
	Sept-Oct			
Mustard	Sept-May	Sept-Mar	Sept-Mar	½ - 1
Onions Bulbing	Sept-Dec	Sept-Dec	Sept-Nov	½ - 1
Onions Bunching	Aug-Mar	Aug-Mar	Sept-Mar	2-3
Onions Multipliers	“	“	“	½ - ¾

Crop	Zone 9	Zone 10	Zone 10b	Depth of seeding (inches)
Parsley	Sept-Mar	Oct-Feb	Sept-Jan	¼
Peas English	Jan-Mar	Sept-Mar	Sept-Feb	1-2
Potatoes	Jan-Mar	Jan-Feb	Sept-Jan	3-4
Radish	Sept-Mar	Sept-Mar	Oct-Mar	¾
Spinach	Oct-Nov	Oct-Nov	Oct-Jan	¾
Strawberry	Oct-Nov	Oct-Nov	Oct-Nov	---
Turnips	Jan-Apr	Jan-Mar	Oct-Feb	½ -1
	Aug-Oct	Sept-Nov		

V. Green Thumb 101:

People take an interest in gardening for a variety of reasons—higher quality produce, exercise in the great outdoors, or saving money. Whether you hope to discover your green thumb or save a little green, growing your own produce can be a very advantageous hobby. When you're just getting started, however, gardening can seem really intimidating. How do you even know where to start? These simple steps will help you on your way to becoming a great gardener; the rest is all trial and error. Not every garden will produce great vegetables, the trick is to not become frustrated and just give up.

Your job is to nurture life, and much like life, it doesn't always work out. Just keep trying and eventually you'll get it.



Step #1: Gather Your Gear

You should gather several gardening tools before you even think about getting dirty. I cannot stress enough the importance of quality tools. Speaking from experience, it is worth the investment to buy high-quality items, as broken or insufficient tools are not only frustrating but cost you more money and time in the long run. Proper tools provide more comfort and efficiency, which means less work for you! You can find most of these items in home improvement stores, gardening supply stores (or nurseries) and online stores. With that being said, if you are strapped for cash like many of us are in this economy, stores like Harbor Freight and Big Lots are a great place to get starter supplies from. They may not be as durable but they will be much more economical for the gardener on a budget. You can replace them at your convenience with higher quality ones. This will help you decide which tools work best for you and after all, any tool is better than no tool at all.

Here's what you'll need to get started (if you are going to do a square foot garden or a container garden, some of these will not apply to you):

- Trowel - Used for weeding and digging small holes

- Gardening gloves - As much as we like getting our hands dirty, we don't like getting them that dirty. A good pair of gloves can also protect your hands from bugs (if you're squeamish), prickly plants and weeds.
- Sun hat - For UV protection, make sure this is wide-brimmed and cinches
- Watering can and/or hose – What you need will vary depending on your garden's water needs and proximity to your water source
- Wheelbarrow – (only for larger gardens) You'll need one to transport mulch, dirt, and compost
- Roundhead shovel - For digging larger holes
- Rake - Ideal for spreading mulch, and gathering or transporting debris that has collected around your garden and between plants
- Shears - Use to prune away browning leaves or snipping herbs
- Pitchfork - This is an essential tool if you are creating a compost heap or pile
- Don't forget your seeds! I would hate for you to do all of this work and end up with nothing to show for it

Step #2: Choose Where To Start

There are four common types of gardens, all of which have their own pros and cons: traditional (in-ground), container, raised beds and vertical gardens. Once you've picked out the sunny spot where your garden will reside, it's time to decide on one (or a combination) of these four garden types, depending on your needs. This is a generalized list and for the sake of time we will only be focusing on container and vertical gardens as these take up less space than the other options.

- **Traditional Garden**

An in-ground garden often provides you with limitless options for what you can grow, while utilizing the natural ecosystem of nutrients, bacteria, and insects already present to help your plants grow. Ideally, choose a site that receives at least 6 hours of direct sunlight and faces south.

- **Container Garden**

For those that can't plant a traditional in-ground garden, whether because of poor soil or no soil at all (apartment or city dwellers), container gardening is a fantastic alternative! There are many different types of containers available at nurseries and home improvement stores. Your containers can vary in shape, size and material to suit your gardening needs (and personality). Beyond terra cotta

and clay pots, almost anything can work as a gardening container: plastic bins, untreated wood barrels, galvanized metal buckets, a hanging planter, a planter box on a windowsill—even a recycled yogurt container or an old boot! Every container is different; some lose moisture quickly and others retain heat, so research before you buy. Make sure the container has adequate drainage and the appropriate depth to sustain the roots of your plants. A container garden is ideal for using store bought organic potting soil, which is aerated, nutrient rich, and weed-free. It is best to place plants with similar moisture and sun needs in the same container. Not every plant is suitable for container gardening and not every container matches up well with every plant. Remember that deep-rooted plants (carrots, for example) require a deep pot (at least 10-12 inches). Ideal candidates for container gardens are leaf and head lettuces, spinach, green beans, peppers, onions, radishes, tomatoes, squash, carrots, garlic, and herbs.

- **Raised-Bed Garden**

Raised beds are a happy medium between a traditional garden and a container garden. The benefits of this garden include better control over the soil, more manageable weed control, and easier access for gardeners who experience pain from bending over too far or have

limited mobility. Materials used to create raised beds include cinder blocks, bricks, untreated wood and even rocks. A raised bed can be anywhere from 6 inches off the ground to the height of a standard table, and generally, these beds are about 3-4 feet wide with a depth of at least 16 inches. (Make sure your beds are not so wide or so deep that you can't reach the plants in the center.) Fill in these beds as you would a standard garden, using good soil enriched with compost. Carrots, cabbage, and other deep-rooted vegetables do especially well in raised beds because you avoid compacted dirt that could be full of obstructions to their deep roots.

- **Vertical Garden**

A Vertical Garden is an indoor or outdoor planter with multiple levels of vertical pots or planters. Its vertical design saves space and water. With a flow through irrigation system, water from the top plants passes to all the lower pots. In its most basic form this type of garden can be accomplished with as little material as soil and a five gallon bucket or two. This type of garden makes the most of the limited amount of space you may have on an apartment balcony or patio and can even be grown indoors, with the appropriate lighting, and the amount of produce it bears is

minimally affected.

Step #3: Prepare Your Soil

Next up, check your soil. Poor-quality soil can throw a monkey wrench into even the best gardener's most valiant efforts.

What characterizes good soil? A high-quality soil for gardening must be:

- Well-aerated, which means air circulates through it well. Dense soil, like clay, is often too thick for roots to grow properly and doesn't drain well.
- Free of stones and other obstructions.
- Soil should not be mostly sand.
- Rich in organic matter, such as compost or aged manure. Organic matter provides nutrients to plants. When a garden is rich in these resources, the soil itself will provide nutrients for the plants to grow, which means that artificial fertilizers are often unnecessary.

Simple tests are available from any garden center to check the quality of your soil, including its pH. Generally speaking, most plants thrive in soil with a pH that is *slightly* acidic. (There are exceptions to this, however, such as blueberries, which love an acidic soil, and beets, which enjoy alkaline conditions.) Be sure to check the package of the plant that you wish to grow to insure that

your soil meets all of its needs.

Proper Drainage:

One of the most important things to remember when finding or creating your soil is drainage; you are trying to plant a garden... not fill a pond. The entire permaculture of insects, bacteria, and microbes that are required for a garden to thrive do better in well-drained soil. If your soil is too thick and does not drain well or does not hold moisture well, the answer is compost, compost, compost. Thick soil also does well with the addition of some sand; take care not to add too much lest your soil turn into a sieve.

Good soil is the most important step to a fantastic garden. The loose, dark earth of the gorgeous gardens seen on television and in magazines doesn't just happen. It is created by gardeners just like you that work to improve their native soils.

Soil types have many different variations and extremes. From constantly dry, nutrient-poor sand to 90 percent rocks held together with 10 percent soil, all the way to rich, heavy clay (which forms a slick, sticky, shoe-sucking muck when wet and then dries to a brick like hardness). Fortunately for us, most soil conditions fall somewhere in between these extremes. Still, very few homeowners find they have that ideal "rich garden loam" to work with.

Soils can be amended with sand to make

them looser and drier or with clay to make them moister and firmer. They can be given plentiful doses of organic material -- old leaves, ground-up twigs, rotted livestock manure, and old lawn clippings -- to improve texture and structure. Organic matter nourishes any kind of soil, which, in turn, encourages better plant growth.

Read the tips below to learn how to make the most out of your garden. The first step is to identify your garden conditions by having your soil tested.

Soil Testing

It's important to have your soil tested to determine if you have a light and sandy soil, moderate and productive soil, or a heavy clay soil. Get a soil test before you start adding fertilizers and amendments to your garden soil. This follows the old advice, "If it ain't broke, don't fix it." Sometimes unnecessary tampering with nutrients or soil acidity can actually create more problems than benefits.

(If you are starting with a raised bed, container or vertical garden and using pre bagged potting soil you can skip this step)

Soil tests tell you the nutrient levels in your soil, basically a plant version of the nutrient guides on packaged foods. They also note pH and organic content, two factors important to overall smooth sailing from the ground up.

To have your soil professionally tested, call your local Cooperative Extension Service.

They are often listed under state or county government in the phone book. They can instruct you in how to obtain a soil-testing kit. You will need to follow the directions precisely for accurate results. When you receive your results the extensive chart can be a bit intimidating at first glance, however if you look for the below items it can help you begin to understand your soil composition:

- If the percentage of organic matter is under 5 percent, the garden will need extra compost.
- Nutrients will be listed separately, usually in parts per million (ppm). Sometimes they are also rated as available in high, medium, or low levels. If an element shows up as low, you should add a fertilizer that replaces what's lacking.
- Soil pH refers to the acidity of the soil. Soil that is below 7 is acidic. Soils from 6 to 7 are slightly acidic; this is considered most fertile pH range or the Goldilocks zone (just right). Soil results above a pH measurement of 7 is alkaline or basic soil, which can become problematic above a pH level of 8. Excessively acidic and alkaline soils can be treated to make them more moderate and productive.

Add only the nutrients that your results show as being necessary and remember: **More is**

not always better.

Don't feel compelled to add a little bit more of a fertilizer just because it promises great results. Too much of any one nutrient can actually produce toxic results, such as disease or worse. Apply only what is needed, and save your money for a better use, like more plants.

Altering pH Levels

It is always best to choose plants that thrive in the pH of your existing soil. However, if you must alter the pH, follow the guidelines below.

Raising your PH (Reducing the acidity)

- Use ground limestone to raise the pH of acidic soils. Limestone is nature's soil sweetener, capable of neutralizing overly acidic soils. Remember that limestone will need time to dissolve into your soil and as such, it is best to add limestone in the fall to allow time for it to do its job. The amount of limestone you use will vary depending on the results of your soil test. If you arbitrarily dump limestone on soil, you run the risk of overdosing the soil. Be sure to follow the instructions on the limestone package or on a soil test.

Lowering your PH (Reducing the Alkalinity)

- To lower the alkalinity and increase the fertility of limey and other soils with very high pH, add cottonseed meal, sulfur, pine bark, compost, or pine

needles. These additives gradually break down and increase acidity of the soil while improving its texture. Garden sulfur is a reliable cure when added as recommended in a soil test. It acidifies the soil over time as microbes convert the sulfur to sulfuric acid and other compounds.

Maintaining the new and improved pH is an ongoing project. Recheck the soil's pH every year and continue to add amendments as needed.

Texture Checkup

This simple, do-it-yourself test provides very important information about your soil.

You will need:

- A Mason Jar or any clear glass jar with a lid
- Powdered dishwasher detergent (acts to help separate the soil)
- Water
- Wax pencil or crayon (to mark the levels of soil as it settles)
- Soil samples from your Garden
 1. Gather some soil from the garden, choosing multiple samples from near the surface and down to a depth of up to 8 inches. If you have dry clay, crush it into a fine granulated powder, and

mix well.

2. Put a 1-inch layer (a little over a cup) in a mason jar with 1/4 teaspoon powdered dishwasher detergent.
3. Add enough water to fill the jar 2/3 full. Shake the jar for 60 seconds, turning it upside down as needed to get all the soil off the bottom.
4. Place the jar on a flat surface, where it will not be disturbed and allow it to settle.
5. One minute later, mark the level of settled particles on the jar with the crayon or wax pencil. This first measurement is the amount of sand in your soil.
6. Five minutes later, mark the level of soil that has settled. This is the amount of silt in your soil.
7. Over the next hour or so, the remaining soil will settle and allow you to make your final measurement. This final measurement is the amount of clay that your soil contains will slowly settle out and allow you to take the final measurement. These measurements show the relative percentages of sand, silt, and clay—

the texture of your soil.

What your Soil Texture Test Results Mean

- Soil that has a high percentage of sand (70 percent or more) tends to be well aerated, ready to plant earlier in spring. But it also tends to need more frequent watering and fertilization than heavier soils.
- Soil that has 35 percent or more clay retains moisture well, so it takes longer to dry in spring and may need less watering in summer. It can be richer and is more likely to produce lush growth with just the addition of compost and, occasionally, a little fertilizer. The compost is important. It helps break up clay so the soil won't be too dense and poorly aerated.
- Soil that has nearly equal percentages of sand, silt, and clay can have intermediate characteristics and is generally well suited for good gardening.

Testing Drainage

Testing the drainage capacity of your soil is as simple as... well as simple as digging a hole. All the soil tests in the world won't do a better job than this simple project. It will let you know how quickly moisture moves through the soil and give you a good idea of how often you will need to water.

When it hasn't rained for a week or more and the soil is dry, dig several holes that are 1' deep x 2' wide. Fill them to the brim with

water and track of how long it takes for the holes to empty. Use the following guide to track your findings:

- 1 to 12 minutes: The soil is sharply drained and likely to be dry.
- 12 to 30 minutes: The soil has ideal drainage.
- 30 minutes to 4 hours: Drainage is slow but adequate for plants that thrive in moist soil.
- More than 4 hours: Drainage is poor and needs help.

These soil tests may seem like a lot of time and effort without much reward, but if your soil is working at its full capacity, your plants will yield the most fruit and vegetables possible; which will keep you happy, healthy and full.

Dandelions on the prowl: Listen to Your Weeds

Believe it or not, weeds can actually be a huge benefit, at least when you are looking for a place to start a garden. Weeds are opportunists, taking advantage of any vacant soil to make their home (just think of how well this strategy has benefited the dandelion).

Although they seem to grow everywhere, dandelions prefer fertile, often heavy soil. Likewise, other weeds favor certain

kinds of soil. For instance, acidic soil can encourage the growth of crabgrass, plantains, sheep sorrel, and horsetails. Alkaline soil (also called sweet or basic soil) is favored by chamomile and goosefoot. Fertile, near-neutral soils can provide a nurturing environment for redroot pigweed, chickweed, dandelions, and wild mustard.

Even if you can't tell one weed from another, you can find out important information by looking at them closely. If a vacant garden area has few weeds taking advantage of the opening, the soil is likely to need plenty of work. If weeds are growing, but only sparsely, and they have short, stunted stems and discolored leaves, the area may have a nutrient deficiency, and a soil test is in order. If, in newly tilled soil, weeds sprout up quickly in certain areas and more slowly in others, the weedy areas are likely to be moister and better for seed germination.

Now that you've learned the basics of soil preparation, let's take a look at how to decide what plants will be utilized in your garden.

Step #4 Know what to Grow

Deciding which fruits and vegetables to grow will depend on what appeals to your diet, which plants will fit within the size of your garden, and which plants are appropriate for your hardiness zone. Could you grow

something exotic that is hard to find at your local farmers market? Is your favorite produce too expensive to buy from the grocery? Are you unsatisfied with the quality or taste of your favorite vegetables?

You can grow any plant directly from the seed, but many "starts" or seedlings are available from your local nursery and are usually ready to plant directly into your garden. While purchasing seedlings is more expensive than growing your own seeds, they are a great way to get started and a major time saver for the novice gardener. If you are just starting out, avoid the frustration of waiting for the seeds to germinate and purchase seedlings, as many seeds need to grow indoors for weeks before they're ready to be introduced to the outside world. If you're starting from seeds, be sure to follow the directions on the label. Some seeds will need to be started inside, however, if a label reads "direct sow," you can sow the seeds directly into the soil. Either way, the packet of seeds or starter plant should include directions about the spacing, watering, and thinning practices that best suit your chosen fruit or vegetable.

If you are having trouble deciding what plant to start your garden with, I suggest tomatoes. Aside from requiring a fair amount of sunshine and water, they are quite hardy

and can usually handle the bumps that come with being a new gardener.

Step #5: Ready, Set, Grow!

1. You've got your gear
2. Prepared your plot and soil
3. Bought your seeds or seedlings

Now it's time to plant them and ensure they'll get adequate sunshine and water as they grow.

Different plants have different needs for sunlight. Heavily sun dependent plants include tomatoes, squash, beans, eggplant, corn, and peppers. Some plants with a smaller solar appetite include leafy vegetables, potatoes, carrots, and turnips. You can sow plants that need less sun in early spring or late summer when the sun is less vibrant. When choosing what plants go where, be sure to place taller plants on the north side of your plot to prevent over shadowing your small plants and stunting their growth.

After your seeds or seedlings are in the soil, use additional compost as mulch to improve water retention, help control weeds, and keep the roots cool in hot weather. Other mulching options include straw, grass clippings, untreated wood chips, gravel, or stone.

Unfortunately, Mother Nature isn't always nice enough to provide adequate precipitation for a garden. Also, depending

on your region, you might need to supplement it by watering your plants a little or a lot. If you notice a plant's leaves, fruit, or buds start to brown or droop, increase the water supply. **Be careful not to over water your plants in an attempt to make up for a lack of rainfall.** Strangely enough, a plant that is over saturated with water it will show nearly identical signs of stress to if it were extremely dehydrated. This happens because oxygen is unable to circulate to its roots and the plant basically asphyxiates. Green leaves and stems that turn yellow or lighten in color could also be a sign of overwatering. To confirm the problem, reason that waterlogged plants do not respond positively to more water. Some water-rich fruits and vegetables, such as melons and cucumber thrive when they receive more water, while others, such as tomatoes, cannot handle having their roots wet for a prolonged period. When watering your plant, always water them at soil level in the morning. Evening watering can make them more susceptible to disease and mildew. Sporadic deep watering is more effective than frequent shallow watering. Be diligent about watering and weeding your new garden and chances are, it will flourish in no time!

A good rule of thumb is to start small and begin with plants that are easy to grow. This way, you'll avoid situations where the joy of your new hobby is replaced with

frustration. I suggest starting with tomatoes; they are simple, hardy, and delicious! The most important thing to remember about gardening is, enjoy it! You will have successes and failures, most of the fun in gardening is learning as you grow!

Conclusion

I want to thank you for taking the time to read through this. I hope that this guide has helped to grow your interest in gardening regardless of the size of land you have to work with. It is my belief that with a little know how we can all get back to our roots and learn how to feed ourselves again. Growing your own food can be a lifesaver in many ways. Simply knowing what you are putting into your body will allow you the option of making better choices about what you eat.

Our food transit system is set up to provide customers with a constant supply of fresh foods. However, it is this very idea that is the system's greatest downfall; the smallest ripple in the economy can cause a devastating butterfly effect. We have witnessed this first hand over the last several years. The major flux in gas prices has put a strain on the transit system that delivers the food to stores, as trucking companies have had to raise the prices of their deliveries exponentially over the last few years. This has impacted the grocery stores to increase their prices.

Over the past decade, tomato prices have

gone through the roof, going from .99 cents per pound up to 2.99 per pound, almost triple the cost. Bananas just two years ago were .33 cents per pound and now they are almost .50 cents a pound when you get them on SALE; and that isn't even for organic bananas. It's not just the cost of gas that is raising the prices, 2011 saw one of the worst droughts in US history. This drought led to a massive outbreak of wildfires across the Southwest, destroying millions of acres and many crops that were already barely hanging on. In 2012 alone the U.S department of agriculture has estimated that there will be an additional 3-5 % increase in grocery costs. That increase, coupled with the high unemployment rate spells disaster for the families that will, now more than ever, find it hard to provide for themselves with the nutritious food that they truly need.

If each of us were to grow our own produce, however, we would reduce the cost of our produce down to pennies on the dollar. If we as a community grow our own food, we can trade and barter vegetables, fruits and grains to further alleviate the strain of this economy. The first step toward self-reliance is to begin to walk away from what we have become accustomed to. Will you take that walk with me?

Thank you again for taking the time to read this and good luck

Cheers!

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