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## Introduction

There was a time when residents of yard-less apartments and townhomes didn't even consider setting up any type of garden because of a lack of space, inadequate sun, and a lack of equipment to work with. But all that has changed with the popularity of vertical gardening. Are you making the best use out of vertical space in your yard? Vertical gardening makes it possible for everyone to have a garden – no matter how small the space. Now, with just a minimal amount of space to work with, there are ways to grow vegetables, flowers, vines, and anything else you can think of.

With trellises, arbors, and all sorts of hanging containers, you can now make the most of any sized space. In addition, vertical gardens can be used to hide unsightly areas and liven up any wall or limited outside area. You'd be surprised how creating a garden in mid-air can turn an otherwise ugly or bland space on a wall into a magical garden of greenery. With vertical gardening, you are limited only by your imagination.

This little eBook will give you all the information you need to begin creating a beautiful vertical garden. Keep in mind that vertical gardens are not limited to flowers and vines. You can grow a wonderful and healthy vegetable garden anywhere where you can hang a trellis or some side planters or some hanging pots.

Aside from beauty, you may be surprised to learn that vertical gardening has many other benefits as well. One of the great things about vertical gardening is that the days of stooping over with your knees and hands in the dirt are over! Vertical gardening can be performed in a snap and without straining your back or getting your knees dirty. In addition, vertical gardens are, of course, up high and therefore out of reach of certain plant-eating insects and soil pathogens

Everyone who has even the smallest area of empty space can create a mid-air vertical garden. An apartment balcony or a townhouse patio can become a magical oasis in just a day – and we'll show you how. In this eBook, you'll learn what plants work best in a vertical garden, the rewards of doing this type of gardening, the equipment you'll need, and how to make use of "every day" items around the house.

We'll show you how to grow vegetables so that anyone, even you, can pluck fresh veggies from the garden in no time at all. Finally, we'll share with you the

secrets of hydroponic vertical gardening and how effective and easy it will be to put together a system that produces beautiful, healthy plants, flowers, and vines, as well as full salad's worth of vegetables.

And don't forget fruit! Using a trellis, you can grow your own grapes, raspberries, and melons and begin to pick fresh fruit every day in no time at all. All it takes to begin a vertical garden is a little pre-planning so that you can ensure that your garden produces exactly what you desire.

Today, find your area that you will use to create your first vertical garden. Pay attention to the wind patterns in your yard area or patio as well as the amount of sun that area gets in the best part of the day. You'll want to position plants appropriately in each area so that the growing environment is ideal. Be careful to avoid electrical lines and gutters and get plenty of stakes to keep your plants secure and plenty of mulch and compost to provide the best nutritional balance for growing in mid-air.

Are you ready to start? Get a pad and paper and start making your plans, drawing a layout of the garden itself, and planning the types of plants you will have in your garden.

A little bit of planning can make a huge difference with your plants. Study the wind and sun patterns in your yard, and then position appropriate plants for each zone of the yard. Heavy winds and intense sunlight can really dry out plants on the border of your garden, so you may want to place hardier plants in these areas. Also, don't forget to use generous amounts of mulch or compost around the roots of your plants: this helps them absorb nutrients while also retaining moisture. As plants climb, you may want to trim them away from electrical lines and gutters, or train them with twine and garden stakes.

Home gardeners sometimes neglect to make use of the space created by vertical areas in their yards. If you're creative, you can use vertical spaces to produce some unusual and beautiful effects in your garden. Vertical gardening is also appealing if you have a small yard or apartment with limited places to grow plants. On this vertical gardening web site, you'll learn how to make the best use of the vertical space you have to create a functional and attractive garden.

Vertical gardening can be anything from training one or two of your vegetables to grow upward in the garden, to creating an elaborate structure with a frame and

cross shelving to contain an entire garden in a small space. Or anything in between!

You can use wooden or metal trellises, hanging baskets, shelves, containers, a wood frame, or any combination of these, to create a space-saving vertical garden. Any space you have available for gardening will be better utilized if you take advantage of growing your plants upward instead of outward. This type vertical gardening is great in urban areas where many homes and apartments have limited outdoor space. Be Creative when Planning your Garden...

A combination of containers, shelves, and hanging baskets works really well on a patio or balcony to create a complete garden in a small space. If you can tackle a project like building a frame with cross-supports and shelves built-in, this also works great and can be an attractive feature in your landscape or on the deck or patio.

## **Chapter 1: Benefits of Vertical Gardening**

There are many benefits to vertical gardening and many of these benefits will be unique to your individual space. Below you will find a list of just a few of the benefits, but I am sure as you begin to grow your garden and reap the rewards, you will find many of your own to add to the list.

1. **Air Purification**. Since vertical gardens can be grown indoors in the home or office area, the working or living environment will enjoy the benefits of the natural air purification system. A well nourished, healthy vertical garden (like the one in the picture to the left) will use photosynthesis as a way to filter harmful toxins such as pollutants, ink fumes, detergents and cleaning fluids, and cigarette smoke out of the air while it simultaneously exudes fresh oxygen.

2. Years ago, it was discovered that groups of people who lived and worked in certain buildings throughout the world would become sick at the same time. This phenomenon was named 'Sick Building Syndrome' and one of the solutions to this problem was to grow walls of plants inside the buildings as a way to filter out the impurities. And it worked! The plants that work the hardest at this task are the Golden Pothos, Boston Fern, English Ivy, the Aloe Vera Plant, and the Spider plants. If you plan your indoor garden correctly, you can grow all of these natural air filters at once.

3. **Saving, Utilizing, & Making the Most of Space**. Making the most of your growing space is one of the joys of gardening. Creating vertical gardens makes the growing of fruits, plants, flowers, and veggies something everyone can enjoy – even those with only the smallest of spaces available. Now, apartment residents who only have a small balcony or patio space or an even smaller backyard or terrace area can use their imagination to create a magical, peaceful area of tranquility. By using appropriate containers, shelves, arbors, trellises, cloth pockets, and small wooden boxes, a person can utilize all available space from the balcony railings to the overhead beams to grown plants and vines.

4. **Privacy.** By really giving some thought to your garden layout, you can actually use vertical gardening to create a screen of privacy between your area and someone else's area nearby! Trellises, arbors, and hanging planters

can be strategically positioned to give the illusion of an extra wall between two spaces. *Everything* in your garden can be positioned or hung to create a private sanctuary-like area.

5. **Healthier, Bug/Disease-Free Plants.** Think about it — where do most bugs live that eat and destroy plants and gardens? On the ground, of course! Vertical gardens on the other hand, being mid-air masterpieces, will happily be hanging above the pesky plant-killers and thus, will always be healthier than your average everyday house or garden plant. Along those same lines, the normal diseases that hide in the soil and wreak havoc on garden plants are all but non-existent in vertical gardens for the simple reason that the soil is elevated.

**6. Create New Shade Areas.** A vertical garden, at some point in the day, will cast shadows, creating brand new shaded areas in your small space. You can do this deliberately of course, if making shade in your small space is your intention. To create shade, use a pergola, trellis, or arbor to build your vertical garden. Make sure to place the plants that do not tolerate or can live without the full-on sun underneath the climbing plants and vines.

7. **Less Preparation & Maintenance.** Plants that are "set-up" to grow vertically will obviously only need a compost bed as big as the root system of those plants. If you think about it, plants that are set-up in the ground will always have a big area for the compost bed; an area that is more than likely, far bigger than the root system. You will also have to create a space between the plants and this area, and the areas will have to be maintained. It is the areas between the plants – the bare areas of soil – that take up not only the gardening time but the nutrients intended for the plants. You will love vertical gardening for its simplicity and the leisurely time that can be expended into the prep and the maintenance of your gorgeous plants! Your compost, mulch, and soil will go a long way, cost less, and be more beneficial to your garden overall. In addition, watering will be a snap. Simply hang a little watering can off to the side of your garden on a pretty piece of rope or string and use only when needed. You will love it!

8. **Creativity Reigns!** Vertical gardens are designed for the smallest spaces and therefore it takes a bit of creativity to design one that will fit the desired space. You are only limited by your imagination here because there are

literally hundreds of stackable, hanging options available to you – many of which probably already exist in your garage, attic, tool shed, etc. You simply need to look around. Grab some paint and start restoring some oldies but goodies: pots, metal buckets, macramé hangers (remember those??), and plastic horizontal planters. Commercial containers such as tower pots are inexpensive and offer stackable simplicity for vertical gardening. These types of containers work perfectly for vegetable vertical gardens as well (green peppers, strawberries, lettuce, and radishes). Use the magic of your imagination to create the space that you want!

9. **No Dirty Knees, No Aching Back.** Once you have created your vertical garden, you can probably maintain it wearing your work dress. Okay, well maybe not – but, believe me, you won't have to put on the knee pads like you did making your ground garden. For those with physical limitations who have had to give up or limit their gardening passion, vertical gardening is the solution! *So* many things have changed regarding maintenance of vertical gardens. Think spray bottle! Organic fertilizers can be sprayed on the leaves and sucked in through the pores of the plant. This is called foliar feeding and it is far healthier for all types of plants than a hard spray of the hose water. When your fruits and veggies are ready for harvest, you simply slide open the patio door and grab a piece of fruit. How cool is that?

### **Chapter 2: Types of Vertical Gardening**

Below are some more ideas for starting your vertical garden. These are simple ideas because simplicity is what makes vertical gardening so extraordinary. The point of creating a vertical garden is to utilize as much as you can out of a small space. The methods below are perfect for doing just that.

#### **1. Planting Pockets**

•What They Are: Plating pockets can come in a variety of shapes and materials but the first two pictures above represent the most popular types. The pouch-style shown in the middle picture is composed of recycled material that resembles a felt-like material. It is breathable and comes in rows of three, with five pockets per row. These pockets can attach to a trellis or a wall with screws and, believe it or not, they can last up to 20 years.

•What to Plant: The standard pockets measure 15" x 24" and hold up 15 or 20 pounds of soil. You can plant perennials and almost every annual you could imagine. Use your imagination and create a wall of beauty to be admired in your small space.

•**How do You Water:** For lower hanging pockets, use a watering can or hose. For those that are up high beyond your reach in your vertical garden, use an automatic irrigation system. The system is attached to a main hose with the drip lines running through the back of the pockets (which are open for this very purpose).

### 2. Hanging Trays

•What They Are: These rectangular plastic trays are divided into planting cells that sit at an angle for easy planting. At the bottom of the tray are small holes for drainage and the trays attach to walls or trellises or arbors with mounting brackets. Each tray comes with a bracket for mounting and many people use these types of vertical garden trays for vertical gardens that are indoors and on walls of offices.

•What to Plant: Plants with a shallow root system are perfect for these types of trays. Succulents work well with the smaller  $2^{"} \times 2^{"}$  cells or pods and annuals and greens (like lettuce) need slightly larger pods ( $4^{"} \times 4^{"}$ ).

#### 3. Pot Hangers

•**How They Work:** These polypropylene supports clamp onto the backs of pots and practically disappear when screwed into a wall or fence. Designed to endure high winds, each hanger can bear up to 100 pounds.

•**Plant Them With:** Anything you'd typically put in a pot is fine, including kitchen herbs and annuals like the pansies and bacopa below.

#### 4. Everyday Items

•What They Are: This is where the imagination comes in. You can use just about anything you want as long as there are holes for drainage and plenty of room for roots and healthy growth. Rain gutters, burlap bags, and even shutters with the bottom closed so that soil can be placed in the vertical area. Whiskey barrels, tin cans, leftover plastic plant carriers – whatever you feel can add to the beauty of your vertical garden.

•What to Plant: The only thing you need to ensure is that the plant that you choose has enough room to grow. The more soil that a salvaged item can hold, the better. It is the root system that must be nurtured even when it is hidden from view. Also, be sure that the material of your everyday item is non-toxic. If you choose to paint your item, make sure to use non-toxic paints and the same goes for glue.

## **Chapter 3: Vertical Vegetable & Fruit Gardening**

Vertical gardening is a Godsend for those who have a passion for fruits and vegetables and only have a small space to grown them in. Don't let anyone tell you that you have to have a yard or a farm if you want to grow a salad of veggies or fruits. The concept of a vertical veggie or fruit garden is to "train" your beloved plants to grow to the sky. Erase everything you've ever heard and read about vegetable and fruit gardens and take a chance on a vertical garden. You will not be disappointed – I guarantee it!

## Here are some simple steps to get you started:

All materials are optional:

- · Bamboo stakes
- $\cdot$  Twine and/or medium wire
- Cup hooks or hanging clips (eye-bolts)
- · Burlap or similar grow bags
- Trellis material or wood and wire scrap
- Netting (or an old hammock)
- Strong rope or durable cable
- Short wooden stakes or sturdy wire pins
- Several kinds of hanging pots or planters

### Step 1

Start with a veggie like the string bean that can be trained to grow upwards. Create tee-pee type structures with three to five stakes (bamboo is best) and tie the top with twine or wire. Make sure to wrap the bottom of the tee-pee stakes with twine or wire as well to provide extra support. You will place these tee-pees over the planted beans and train the vines to grow as they bloom, typing or wrapping them around the stakes.

### Step 2

Don't be afraid to get creative. Hang tomato plants on fences or pieces of trellis or from an arbor. Use cup hooks as securing points for climbing plant vines.

## Step 3

Learn to love planting bags! Certain vegetables and fruits like melons, cucumbers, squash, and some types of tomatoes come ready made with a trailing tendency. Grow your plants in planting bags. Hang them upside down from the top of an arbor or overhang and enjoy!

### Step 4

Using the same concept as Step 3, string a strong piece of rope or a heavy duty cable between two points, at the top of an arbor, between two trees, from one wall to another, from one vertical garden to another. Now, tie a large piece of netting or an old hammock from the top of the rope or cable to secured points on the ground. Grown peas or string beans and train the plants to grow up the netting.

## Step 5

Many fruits such as strawberries can be grown in hanging pots of all sizes. The great thing about growing fruits in a vertical garden is that the fruits remained unscathed by ground soil and contaminants in the low places. You can practically pick a strawberry off your plant and pop it in your mouth!

Whether you're a beginner vertical gardener or a vertical gardener branching out to fruits and veggies, the veggies in the list below will get you started. This list is all about easy-to grow vegetables that bring big, healthy rewards. You can grow these plants from seedlings or from the seed itself – it's completely up to you. Seeds are inexpensive and can even be ordered online. You can't get more convenient than that! Study the grower websites to find the best possible seed for your climate and method of growing. You will love it!

1. **Arugula, lettuce, & spinach**. Pick your favorite salad green or try all three. Look for seed companied online that sell a mix so that you can plant in both the summer and the winter and have salad all summer long from your vertical garden.

2. **Green Beans**. Green beans are easy to grow and they actually freeze well if you end up growing more than you can handle. Be sure to start in the

warmer months after any sign of late night or early morning frost has passed.

3. **Radishes**. Radishes rock! Radishes are so easy to grow and taste delicious as soon as they're ready to do pick in just a few short weeks. Plant your seeds in the spring or in the fall and don't stress about having the best soil because radishes grown in just about anything!

4. **Strawberries.** Perfectly ripe strawberries are luscious, and the plants are surprisingly hardy. Buy bare-root plants from your local garden center in early spring. Put this perennial in a sunny spot and weed often.

5. **Peppers**. Hot and bell peppers are both easy to grow. Start with seedlings and let peppers ripen for different lengths of time to get a range of colors and flavors. Most peppers turn from green to red or purple over time, becoming sweeter along the way.

6. **Tomatoes.** There's just no substitute for a perfectly ripe, homegrown tomato, and it's hard to go wrong when you start with strong plants (look for thick stems and healthy leaves). If you get a big crop, consider canning or freezing.

7. **Herbs such as Basil.** Many herbs are easy to grow, but basil is among the easiest. It complements tomatoes in both the garden and the kitchen and grows well from seeds or transplants.

# **Tips for Small Space Gardening**

- 1. When buying seeds, choose dwarf or "mini."
- 2. Plant seeds close together and harvest veggies in small bunches.
- 3. Plant veggies and fruits in a sunny area and change out the containers on a yearly basis to avoid any chance of disease or soil contamination.

4. Avoid veggies that take up a lot of space like potatoes and most types of zucchini.

5. Grow carrots, turnips and beets, which produce small, tender roots quickly, and fast-growing green, leafy vegetables such as spinach.

6. Grow tomatoes, peppers and eggplants in stackable pots or containers and other tasty fruits and veggies like cherry tomatoes in hanging baskets. Green beans and cucumbers are perfect veggies to grow in vertical gardens

and work perfectly on trellises and arbors.

7. Always create your vertical garden near a water source that you can access easily.

8. Gardens that face south tend to produce healthier plants and vines. However, leafy salad greens will grow well in shade.

9. Start small with your first vertical garden and plant the fruits and/or veggies that you love the most. This will keep you motivated to care for and create with your imagination!

10. Let the kids get involved. Vertical gardening can be a family activity that everyone can enjoy for years. Let everyone in the family pick one thing to grow in the garden and let them each be responsible for that fruit or veggie.

**Climbing Plants**: *cucumbers*, *acorns or butternut squash*, *tomatoes*, *green beans*, *peas*, *and lima beans*.

These will need support system such as trellis or frame to climb upward.

Non-Climbing Plants: peppers, lettuce, radishes, onions, eggplant

## **Chapter 4: Vertical Gardening Supplies**

Vertical gardens can be grown on anything that reaches for the sky: a wall, the side of a building, a trellis or arbor, a ladder, stackable containers – you name it. Any type of structure that you can create will work for growing any kind of flowering vine or vegetable.

Here are some of the supplies that you may want to consider as you begin your vertical gardening project:

# Arbors

Arbors come in a variety of styles and are made from a variety of materials. The prices of an arbor will depend on whether it's made from iron, wood, vinyl, or plastic. Some arbors even have a small sitting bench built or a swing built into the structure and this makes for a perfectly relaxing gardening experience.

On hot days, a canopy of vines growing through the arbor top and along the sides will create a cool shady area. The addition of a vine growing up and over your arbor will make it a cool and shady spot. Arbors are best used outside in a small yard area simply because of the size of the structure. This is not to say, however, that you couldn't get creative with an arbor on a decent size balcony or patio.

## Trellises

Trellises are flat and can either lean or stand alone depending upon the style of trellis you use. You have probably seen trellises used to create privacy screens on patios and balconies and for this reason a trellis makes a perfect structure for building a vertical garden.

A trellis can also be secured to a wall so that the flowering plants, veggies and vines are encouraged to create a carpet of beauty all the way up the side of a building, house or balcony wall. A trellis can also be used to create indoor vertical gardens like the type created for office building and hotel lobbies. A trellis can be painted whatever color you like and intertwined with small lights for nighttime decoration.

**Plant Choices.** Plants that climb like roses and ivies will always be perfect for vertical gardening. There are however, many other plants that will grow as well.

It's okay to choose veggies and fruits that require support because you will be creating your vertical garden in containers and on structures that serve that purpose specifically. You'd be surprised that even heavier fruits and veggies like melons and squash can grow in a vertical direction. It helps of course, to support your heavier plants in grow bags, burlap hangers, or by making little hammocks that actually allow the fruit or veggie to hang leisurely in mid-air. Again, use your imagination!

# **Containers:**

Finding the perfect containers is just one of the fun parts of your vertical gardening endeavors. Get creative when considering what to use as vertical garden containers. Decide how much you want to be working directly with the soil and this will help you decide. Vertical garden containers are all about conserving space so think small but think in capacity. Container or vertical gardens allow you to grow anything you want in the smallest of areas. Since you will want these areas to be as attractive as possible, it's time to use your imagination.

**Wooden Whiskey Barrels**. While full-size whiskey barrels may be too big for some small areas, half-size whiskey barrels are perfect. You can find the half-size barrels online or at your local Home Depot department store. Fill the barrels will soil and compost and/or mulch and plant the seeds to your favorite flower. You can also insert stakes into the soil or smaller sized trellises and grown roses or ivies.

**Concrete Planters.** Concrete planters come in many sizes and shapes. Some are long enough to accommodate a trellis and others are small enough to accommodate just one or two plants. You will see concrete planters in public parks and in the landscaping along city streets and by the front doors of large business buildings of libraries. These planters are very heavy so if you plan to use some of them, do not plan to move them anytime soon – especially when they are filled with dirt and a growing plant.

Anything goes when you project is a vertical garden. Visit your local grower to get some beautiful ideas and visit the many websites that share amazing ideas. Vertical gardening is a way to bring serenity to your life and to add a splash of color to the smallest of spaces.

Gardens are no longer exclusive to those who have large yards or a farm-style lifestyle. Today, anyone can take a small space in an apartment or a teeny square of soil in a townhome yard and create a wonderland of color and healthy, edible delights!

Reach for the sky with your vertical garden – you are only limited by your imagination!