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Plant propagation is a fascinating topic that’s exciting to learn about, and it’s also very rewarding.

Once you get the hang of it, you’ll be able to multiply any of your plants as many times as you want - for FREE!

I remember when I first started learning about this fun hobby many years ago.

As a total newbie, I had no idea what plant propagation even meant (and honestly I was a little intimidated by such a big word), let alone how to get started.

But I quickly became obsessed, and I found myself experimenting with propagating every type of plant that I could get my hands on.

As a result, I’ve successfully propagated all of my houseplants, and many, many of my garden plants.

I painstakingly learned, by trial-and-error, the easiest propagation methods for beginners to get them successfully propagating plants as fast as possible - and now I get to share all of my secrets with you!

In this comprehensive guide, I will teach you all you need to know so you can get going right away, no matter what type of plant(s) you have.

I hope you will love propagating plants as much as I do. It’s a great way to get free plants and share your favorites with friends and family.

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Note: For your convenience, I’ve put together a comprehensive list of all the tools, supplies, and equipment I mention throughout this eBook. These are all products I love and use to propagate my own plants.
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WHAT IS PLANT PROPAGATION?

Propagation is a big word, but the definition is simple (at least mine is). Here is my definition...

*Plant propagation is the process of creating new plants from existing ones.*

Plants from plants... How exciting! The definition is simple, but the process can be a bit more complicated. So let’s dive in and talk about all of the specific details!

THE BENEFITS OF PROPAGATING PLANTS

When you learn how to propagate the plants you already own, you have unlimited potential to expand your collection, and fill your home and gardens with as much green as you want.

But there are other benefits to learning how to reproduce plants too, here are a few of the main ones:

- **Free plants** - Do you have a new home, garden area, or outdoor containers you want to fill on a tight budget? You can do it for pennies-on-the-dollar by multiplying the plants you already have.

- **Trade for new varieties** - A great way to add new varieties to your home and garden is to swap cuttings, seeds, divisions, or starts with neighbors and friends.

- **Overwinter cuttings only** - You don’t have to lug heavy pots inside every fall, you can keep your favorite summer tropicals and annuals by overwintering the cuttings, bulbs, or small divisions instead.

- **Gift giving** - Give indoor or outdoor plants away as presents (they make great housewarming gifts)! Your friends will love the thoughtful gift, and they’ll never know it was free for you to create.

For very little effort, you can get several new plants by propagating one plant that you already own.
BASIC PLANT PROPAGATION METHODS

At a very high level, there are two main ways that plants reproduce: either sexually or asexually.

Many species can be multiplied using more than one method, and it’s fun to experiment to see what works the best for each type that you have.

Once you understand which method to use for each of your plants, you’ll be able to propagate them anytime you want.

Below I’ll break each of these methods down and discuss them in more detail.

Sexual Plant Propagation

The primary reproduction method for many types of plants is sexually through pollination.

As long as they aren’t sterile, plants will form seeds after the flowers have been pollinated.

By harvesting the seeds that are naturally produced, you can grow more plants without spending any money at the garden center.

Growing seeds is a great choice for propagating your favorite flowers and vegetables, and even some of the most common types of houseplants.

I’m not going to go into great detail about sexual propagation here because I created an entire online course with all of the intricate details about how to grow seeds.

It’s a self-paced online course, so be sure to sign up for that if you want to learn all about how to grow plants from seed.

Asexual Propagation In Plants

Asexual propagation involves taking a piece or part of a plant and using it to grow a “cloned” baby.

Plants have different parts, like stems, leaves, offshoots, or bulbs, for example, that you can remove and use to create a brand new plant.

There are three main ways to propagate plants asexually: rooting cuttings or leaves, division, or layering. In the following sections, we’ll take a deeper dive into each one.

Tip: There are three main ways to propagate plants asexually: rooting cuttings or leaves, division, or layering.
Cuttings

For many types of plants you can take cuttings of the stems or leaves and root them. The cuttings will eventually mature into a full-sized specimen.

Rooting cuttings is fun and rewarding, but also comes with its own unique challenges. For one, it’s extremely important to keep everything sterile, so your cuttings don’t become infected with a disease.

It can also take a bit of time to get the hang of, especially once you start experimenting with plants that are more difficult to root from cuttings.

It's definitely something that can take some time to gain experience and have consistent success with. But with patience and practice, you’ll enjoy the process, and be able to root any cuttings that you want!

Stem Cuttings

Stem cuttings, also called slips, are simply a piece of a plant’s central stem, or the tip, vine, cane, branch, or segment that you cut off and root in either water or soil.

There are tons of plants that you can propagate from stem cuttings, and it’s one of the best ways to start experimenting.

Some cuttings will form roots at the very bottom, while others will sprout roots all along the stem, or only out of the leaf nodes (the point where the leaves are growing out of the stem).

If you’re unsure how the roots will develop on your stem cuttings, then make sure they have 2-3 leaf nodes included on them for best results.

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Leaf Cuttings

Several types of plants have soft, fleshy leaves or pads that you can propagate to create a whole new plant.

Some leaves will only root if they remain whole, while others can be cut apart to create many plants from one leaf.

If propagation is successful, a tiny new plant will begin forming at the base of the leaf. When the roots become established and the babies are big enough to survive on their own, the old leaf will usually die back, which you can remove and discard.

Though it’s fun to try to see if you can root individual leaves, keep in mind that it will take much longer to get a nice-sized plant from a leaf than it will from a stem cutting.

Different Types Of Stem Cuttings

While reading about rooting cuttings, you may have come across terms like “herbaceous”, “hardwood”, “softwood”, or even “semi-hardwood”, but what the heck do those mean?

As a beginner you don’t really need to get too bogged down in the nitty gritty details here, but it’s nice to understand the differences. Below I'll give you a brief, non-technical description of each one.

- **Herbaceous cuttings** - These are cuttings taken from non-woody plants. They’re usually quick and easy to root, which makes them the best type of cuttings for beginners to start with (and these are the types that I recommend and focus on throughout this eBook).

- **Hardwood cuttings** - This term is generally used to describe cuttings from the hardwood branches of a shrub or tree, and they’re usually taken in the late fall or winter while a plant is dormant. The rooting process is typically much more involved and difficult, so it’s best to wait until you have some experience before you try propagating these.

- **Softwood cuttings** - These cuttings are also from plants with woody stems and branches, typically trees and shrubs, but they’re cut from the new soft tips that grow in the spring and early summer. Softwood cuttings usually root faster than hardwood, but they still need special care to have success.

- **Semi-hardwood cuttings** - Semi-hardwood cuttings are similar to softwood and hardwood, with a very subtle difference - they’re taken in the late summer or early fall when the tips of the branches are in the process of turning from soft to hardwood.
Division

Some plants form bulbs, stolons, or offsets as they mature. You can remove these and use them to create an exact replica of the parent plant.

Propagating plants by division is usually a good way to get a larger plant faster than you could with cuttings. Plus it doesn’t require as much equipment and patience.

Tip: Propagating plants by division is the easiest method for beginners to start with.

However, sometimes it can be quite labor intensive - especially for well-established plants that have a very tight rootball. But for many types of plants this is the simplest, or sometimes the only, method you can use to propagate them.

Bulbs, Corms, Tubers, Rhizomes

Bulbs, corms, tubers (collectively referred to as “bulbs”), and rhizomes form underground on some types of plants.

Once they’re large enough, you can separate the bulbs (as with elephant ears or canna lilies) or take divisions of the rhizomes (irises and ginger are good examples) and plant them on their own.

Some can develop into a full-sized plant very quickly, while others may take a few years before they grow large enough to become a sizable plant.

Stolons

Stolons, also called shoots, plantlets, or runners, are stems that grow out of a plant, and they contain a miniature version of the mother on the end.

These stems can grow out of the top or side of the mother plant. They will drape downward in a hanging basket, as with a spider plant, for example.

In the garden the stolons will root themselves wherever they touch the ground, as is the case with strawberries or sempervivum.

For the best chance of success, wait until the plantlets have roots or starter nubs of their own before removing them from the mother.

A mature bulb will eventually form new baby bulbs around the base which can be removed and potted up, as with this amaryllis.

Sempervivum is a good example of a plant that forms stolons around the base of the mother, which can easily be removed and rooted.
Offsets
There are many types of plants that send out offsets, also called suckers, babies, or pups, as they mature.

These offsets often form around the base of the mother plant and usually pop up from underground, like you may have seen with banana plants, aloes, or yucca. But some can grow on the side or top of the mother, as with a barrel cactus, for example.

Once they’re large enough, you can remove the babies and pot them up, or relocate them to a new garden area.

Removing offsets from the mother is easy for some plants, but can be tricky and sometimes labor intensive for others.

For the best success, wait until the pups have their own roots before removing them, otherwise they may not survive on their own.

Layering
In some cases you can root stems, tips, offsets, or stolons while they are still attached to the mother plant, without cutting them first.

The benefit of using this method is that the new start still receives nutrients and moisture from the mother plant while it forms its own root system, so the success rate can be much higher.

However, it’s a little more challenging to master the layering techniques and get consistent results. So learning how to be successful with it will take some practice.

Air Layering
If you’ve grown plants for any length of time, you may have noticed that sometimes roots will develop along the stem, even if that part of the stem is nowhere near the soil. Those are called aerial roots.

Well guess what, we can mimic this natural phenomenon and use it as a way to propagate our plants. With air layering, you make a shallow cut or wound on the stem, wrap it in a damp medium, and keep it moist until roots form.
This method is great to use to fix tall, leggy stems without having to top the plant and hope the cutting will take root. Dieffenbachia, ficus, aglaonema, and dracaena are good examples of plants that you can try this method on.

**Soil Layering**

Many plants will naturally form roots at the point where their stems, tips, or stolons touch the soil.

By burying or pinning those parts to the ground, you can encourage the plant to propagate itself without much effort.

Vining plants and those that produce long stems with stolons at the end are often the perfect candidates for this method. But you can try it with plants that have woody stems (like certain types of shrubs), or ones with long pliable canes or branches too.

**BEST TIME TO PROPAGATE PLANTS**

Getting the timing right is another important key to successfully propagating your plants. The season, as well as the temperature, moisture, and humidity levels, all play a role.

In general, the best time of the year to propagate plants is in the spring or summer. With fall and winter being the worst times.

That’s because spring and summer are the active growing seasons for the majority of plants, which is when they have the most energy built up. The temperature is also much warmer during the summer, and if it’s humid where you live, that’s even better.

However, avoid the hottest days of summer, especially in dry climates. Hot, dry weather puts a lot of stress on plants, which can hinder reproduction. It’s also more difficult to root cuttings and care for new starts or division in dry conditions.

Fall and winter are not ideal because that’s when most plants begin to go dormant for the winter, and this sleepy state makes propagating them much harder.

**Tip:** The best time of the year to propagate plants is during their active growing season, which is usually in the spring and summer.
EASIEST PLANTS TO PROPAGATE

While some plants are extremely easy to propagate, others are more challenging. In fact, some can only be done by professionals in a lab environment with lots of expensive equipment.

Don’t worry, there are plenty that you can multiply at home yourself. But if you’re new to this, then it’s best to start with the easiest plants to propagate.

That way you’ll be successful from the beginning, and it will help build your experience so that eventually you’ll have the confidence to try something more challenging.

Below I’ve put together a list for you to get you going quickly. These are very common plants that are also among the easiest to propagate using the different methods I described above. Choose only one to begin with, or try a few at a time.

<table>
<thead>
<tr>
<th>Stem Cuttings:</th>
<th>Leaf Cuttings:</th>
<th>Bulbs, Corms, Tubers:</th>
<th>Stolons:</th>
<th>Offsets:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pothos</td>
<td>Begonia</td>
<td>Canna lily</td>
<td>Spider Plant</td>
<td>Barrel cactus</td>
</tr>
<tr>
<td>Tradescantia</td>
<td>Burro's tail</td>
<td>Calla lily</td>
<td>Strawberry Begonia</td>
<td>Barrel cactus</td>
</tr>
<tr>
<td>Coleus</td>
<td>African violet</td>
<td>Tuberous begonia</td>
<td>Strawberries</td>
<td>Aloe</td>
</tr>
<tr>
<td>Sedums</td>
<td>Christmas cactus</td>
<td>Amaryllis</td>
<td>Ajuga</td>
<td>Agave</td>
</tr>
<tr>
<td>Hoya</td>
<td>Cactus pads</td>
<td>Cyclamen</td>
<td>Sempervivum</td>
<td>Haworthia</td>
</tr>
<tr>
<td>Peperomia</td>
<td>Kalanchoe</td>
<td>Gladiolus</td>
<td>Strawberry geranium</td>
<td>Snake plant</td>
</tr>
<tr>
<td>Marigold</td>
<td>Pilea</td>
<td>Caladium</td>
<td>Piggyback plant</td>
<td>Yucca</td>
</tr>
<tr>
<td>Geranium</td>
<td>Jade plant</td>
<td>Elephant ear</td>
<td>Mother of thousands</td>
<td>Bromeliad</td>
</tr>
<tr>
<td>Ivy</td>
<td>Echeveria</td>
<td>Iris</td>
<td>Basket plant</td>
<td>Mangave</td>
</tr>
</tbody>
</table>

BASIC EQUIPMENT & SUPPLIES

The good news is that you don’t need a ton of expensive equipment to get started propagating your plants. Awesome, right? But you will definitely need a few things.

For your convenience, I’ve put together a comprehensive list of all the tools, supplies, and equipment that I recommend. These are all products I love and use to propagate my own plants. I update the list on a regular basis, so be sure to bookmark that page for later reference.
To get you going quickly, below I’ve listed some of the most basic supplies you may want to buy before you start. Heck, you might have many of these items on hand already.

- Growing medium
- Propagation chamber or propagation box
- Rooting hormone
- Sharp knife or clippers
- Trowel
- Plant mister or spray bottle
- Plant pots (3” or 4” is a great size)
- Heat mat (optional)
- Plant grow lights (optional)
- Soil moisture gauge (optional)
- Humidity monitor (optional)
- Potting soil (for potting up your new babies)

**Growing Medium**

A growing medium, or media, is what you put your cuttings, stolons, or offsets in to root them. There are different types of growing mediums you could use, but to keep it simple we’ll stick to either a soilless propagation mix or water as our mediums.

The type of medium you use to propagate your plants is very important for consistent success.

Regular potting soil is too heavy, holds too much water, and doesn’t provide enough airflow for the tiny new roots to form. This means that your starts will have a higher chance of rotting.

Many brands of potting soil also contain synthetic fertilizers or other chemicals, which can damage the cuttings or inhibit root growth. So you definitely don’t want to use those.

A propagation medium should be lightweight and porous enough to allow for good drainage and airflow. It’s also very important that your medium is made of high-quality, sterile ingredients to ensure the cuttings aren’t exposed to any pests or disease.

I’ve never found a pre-mixed propagation medium for sale before, so I always make my own.

If you don’t want to mess with making your own, you could use a pre-made seed starting mix. Just look for one that is organic so you know it doesn’t contain any harmful chemicals.
DIY Growing Medium Recipes

Over the years I’ve experimented with lots of different growing mediums, and I have come up with two perfect recipes for propagating all types of plants.

The first one is a general purpose medium that will work for most types of tropical plants. I recommend using this mix in your propagation chamber or when you use the baggie method for rooting cuttings.

The second recipe is a mix that I created specifically for propagating succulents and cactus plants. It drains faster and doesn’t hold as much moisture as the first, which is ideal for all types of desert plants.

Armed with these two growing medium recipes, you will be able to propagate any type of plant that you want.

**General Purpose Propagation Medium Recipe**

- 4 parts pre-moistened coco coir or peat moss
- 4 parts perlite or pumice
- 1 part vermiculite

**Succulent & Cactus Propagation Medium Recipe**

- 2 parts coco coir or peat moss
- 2 parts coarse sand (use 3 parts sand for cacti)
- 1 part perlite or pumice

The unit of measurement you use to measure your “part” doesn’t matter, as long as you use the same one for each ingredient. You could use a cup, a gallon, a scoop, a handful… Whatever makes the most sense to you, and for the size of the batch you plan to make.

**Mixing & Use Instructions**

Dump all of the ingredients into a bowl, bucket, or tray, and use a large spoon or trowel to mix them together until they are well blended. It’s ready to use right away.

If you have any homemade growing medium left over, you can store it for later, just be sure to use an air-tight plastic container so bugs can’t get in.

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Growing Medium Ingredients Defined

If you’ve never made your own soil mix or growing medium before, then the ingredients I’ve listed in the recipes might be unfamiliar to you. So here I’ve explained what each one is and the purpose it serves.

The good news is that they are all very easy to find at any garden center, big box store, or online retailer. I’ve also listed the brands I use for all of these ingredients on my propagation tools and supplies page here.

Coco Coir vs Peat Moss
Either coco coir or peat moss create the main base for our medium, and also help to retain moisture. The choice between which one to use comes down to sustainability and availability.

Peat moss is usually easier to find, but it is very slow to renew, so it’s not as environmentally friendly. Coco coir is very sustainable and eco-friendly, as it is the by-product of coconut processing. It’s become much more popular over the last few years, however you still might have a hard time finding it.

Perlite Or Pumice
Perlite is a very lightweight soil amendment (it’s the white pieces that look like Styrofoam in potting soil). It adds drainage, prevents compaction, and improves airflow. It’s usually readily available at any garden store or online retailer. But if you can’t find it, then pumice is a great substitute.

Vermiculite
Vermiculite is a naturally occurring mineral and is also very lightweight. It helps the soil retain water, which means the medium won’t dry out as fast, and it also reduces compaction and promotes root growth. You’ll notice it’s not one of the ingredients used in our succulent/cacti mix, and that’s because it holds too much moisture.

Coarse Sand
This ingredient is only necessary if you’re making the succulents/cacti growing medium. Sand ensures that the medium drains very quickly. You could use any type of sand as long as it’s sterile. But to ensure fast drainage I recommend buying a coarse sand or a good mix, rather than using the really fine stuff, otherwise it could cause compaction and hold too much water.
Propagation Chamber

A propagation chamber (also called a propagation box or propagator) is a container that’s specially designed for rooting plant cuttings.

It works like a mini greenhouse that protects the cuttings, while also providing enough humidity, warmth, and moisture so they can survive long enough for roots to form.

You can purchase commercial propagation trays and kits, or you can follow my instructions below to make your own.

If you only plan to propagate cactus and succulent plants, then you won’t need a propagation chamber.

How To Make Your Own Propagation Box

It sounds like it would be complicated, but making a propagation box is actually really easy. You only need a few supplies, and you may even have everything you need already on hand.

Supplies Needed

- Clear plastic storage bin with a lid (an opaque one will not work)
- General purpose propagation medium
- Water
- Drill (optional, if needed for making holes in the lid)

Step 1: Find a clear storage bin - Find or purchase a clear plastic storage bin with a clear lid. It’s important that both the bin and the lid are completely transparent so that light can reach the cuttings. The size of the box doesn’t matter as much, but think about what types of cuttings you will be rooting in there, and how tall the box will need to be. The storage bin I use is about 16"W x 10"D x 10"H, which is perfect for most cuttings.

Step 2: Prepare the propagation box - Clean the inside of the storage bin well by washing it with soap and water, then rinsing it out. Do not make any holes in the bottom, you want it to hold water.

Tip: A propagation box makes rooting cuttings much easier and faster!
**Step 3: Drill holes in the lid (optional)** - If the lid on your storage bin forms an air-tight seal, then drill several holes in the lid to add ventilation. Otherwise you can skip this extra step if it’s loose fitting or if you prefer to just gently lay the lid on top of the bin without sealing it. You may want to wait until you use the box a few times before drilling holes in the lid, that way you can gauge how it holds moisture, and see if it needs any extra ventilation.

**Heat Mat**

In order for cuttings to develop roots they need to stay warm. Placing your propagation chamber on a heat mat (the same one you use for growing seeds) speeds up the process and helps to encourage the cuttings to form roots.

This is an optional piece of equipment, but it can be a game changer. I’ve never done a side-by-side comparison, but in my experience cuttings can root twice as fast with bottom heat than they will without it. But if you don’t want to purchase a heat mat yet, you have a few other options.

During the winter, you can place your propagation box on or near a heat vent, or place it somewhere warm like on top of the fridge or in a room with a space heater running nearby. Just be careful because the dry air from the heat vent or space heater could cause the medium in your propagation box to dry out faster.

**Rooting Hormone**

Rooting hormone is a plant hormone that comes in either powder or liquid form. It’s designed to help to speed up root formation, encourage uniform growth, and increase the number of roots that a cutting will form. It can also help protect cuttings from disease and bacteria.

It is not required for propagating plants, but using it will improve your chances of successfully rooting your cuttings. So I recommend using it, especially if you’re just starting out.

You can make several propagation boxes and stack them on a shelf to propagate even more plants at one time!

Dusting cuttings with rooting hormone will speed up the process, and improve your chances of success.
Plant Grow Lights

Grow lights are another optional piece of equipment, but very helpful to ensure your starts don’t grow leggy while they’re being propagated. Bright light also helps the cuttings to root faster.

To make sure you get the right kind, look for plant grow lights, or use LED or fluorescent bulbs. You can buy a full system at grow stores or online. Or you can try making your own DIY grow lights with these step by step instructions.

If you already have grow lights at home that you use for seedlings or other plants, then you can use those for your cuttings too.

Hang the lights right over the top of your propagation box or a few inches above your starts, and keep them on for at least 12 hours a day. I recommend getting an inexpensive outlet timer to make it easy to keep them on a consistent schedule.

Soil Moisture Gauge

Maintaining the perfect moisture level is extremely important for successfully propagating plants - and this is also one of the hardest things for people to get right.

So that’s why I recommend getting yourself a soil moisture gauge. This handy tool is inexpensive and very easy to use. Simply stick the probes a few inches deep into the medium, and it will show you how wet, moist, or dry it is.

Use it to test several areas of the medium, rather than just sticking it in one spot. In your propagation chamber, you want the medium to stay in the “moist” range, but never “wet”. For succulents and cacti, it should be in the “dry” range.

Don’t forget, you can find links to all of these and all of the other tools and equipment I use and recommend on my Plant Propagation Supplies page.
PROPAGATING PLANTS: STEP BY STEP INSTRUCTIONS

In the following sections I will show you step-by-step how to propagate plants from cuttings, by division, and with layering.

I encourage you to try all of these methods and techniques with a variety of plants and see what works best for you.

Before getting started, make a list of plants that you’re interested in propagating. I recommend choosing from the table of the easiest ones above if you’re a beginner.

Then see the chart below to decide which propagation method you want to try for each of your plants.

How To Root Plant Cuttings

In this section, I'll give you detailed steps for how to root stem and leaf cuttings using some basic methods. We'll cover rooting them in a propagation box or water, and I'll also give you special steps to take for rooting succulent and cactus cuttings.

But before I get into the detailed instructions for how to use each of these techniques, it’s important to talk about how to properly take and prepare your cuttings. Because starting with a healthy cutting is the first step for success.

Taking Cuttings

Before taking cuttings, first you should make sure that the mother plant is healthy, well hydrated, and pest and disease free.

For best results, water the mother a few days before taking cuttings to ensure the plant is not dehydrated. The plant should be firm and upright, not droopy or shriveled.

It’s important to use a sharp knife or pruning shears when taking your plant cuttings. Using a dull blade or pinching cuttings off with your fingers can crush or tear the stem and prevent rooting. This can cause damage to the parent plant as well.

Always use a sharp and sterile tool to take plant cuttings for propagation.

It’s also important to use sterile tools to take your cuttings to prevent the spread of disease, mildew, or bugs. To sterilize your tools, you can dip the blades in rubbing alcohol or wash them with soapy water before taking cuttings.
Find a branch or stem that is 3-4” long and has 2-3 leaf nodes for the best results. The more area you have to root, the better the success. Once you find the perfect section, sever the cutting just above the next set of leaves below it on the stem/branch.

To take leaf cuttings, you can either clip them off at the point where the leaf joins with the stem of the parent plant (works best for plants like African violets or begonias), or gently take hold of the leaf you plan to propagate and wiggle it until it breaks off (works well for succulents).

**Preparing Cuttings**

Once you’ve taken your stem cutting, remove the lower few sets of leaves to expose the leaf joints on the main stem.

Also be sure to remove any flowers and flower buds. This will allow the cutting to put its energy into growing new roots rather than flowering.

For succulents and cactus cuttings, allow the wound to cure (dry out and callus over) before rooting them. Thick cuttings should cure for 3-7 days, while thinner stems will only take a day or two. You’ll know it’s ready once the cut wound feels dry and crusty to the touch.

For all other types of cuttings (including succulent and cactus leaves), you should follow the steps below to get them rooting right away, because you don’t want them to dry out or start shriveling.

**Rooting Plant Cuttings & Leaves**

In the sections below you’ll find the steps for exactly how to root plant cuttings and leaves. The method you choose depends on the type of cutting that you have.

For example, a propagation box will hold too much moisture for some cuttings, like succulents and cacti, while others won’t root without using one.

You’ll also find that some will root quickly in water without any negative side effects, while others will only shrivel up or rot.

But several cuttings aren’t that finicky and can root well with any of these methods, so I do encourage you to experiment with all three. Not only is it a fun exercise, but it’s a great way to learn which method works best for each of your plants.
Using A Propagation Chamber

The purpose of using a propagation chamber is to keep the environment around the cuttings very humid and warm. This helps to encourage thick, healthy roots, and also speeds up the rooting process.

The best types of cuttings to root in a propagation chamber are ones that prefer humid conditions, for example tropical plants.

This is also a great method to try for any cuttings you’ve had trouble rooting before, or ones that tend to dry out before they have a chance to root, like hard or softwood cuttings.

The only types of plants that don’t work well with this method are succulents and cacti, or others that naturally grow in arid climates, as they will likely rot from the extra humidity.

Be sure to gather all of your supplies and prepare your propagation box and medium before taking your cuttings. Otherwise the cuttings might shrivel or dry out, which could prevent them from rooting. The goal is to plant the cuttings in the box as quickly as you can after taking them.

Supplies Needed*

- Propagation chamber
- General purpose propagation medium
- Clippers or knife
- Rooting hormone (optional but recommended)
- Heat mat (optional but recommended)
- Grow lights (optional but recommended)

Tip: For best results, water the mother plant a few days before taking cuttings to ensure it is not dehydrated.

* Find links to all of these and many other items you’ll need on my comprehensive Plant Propagation Supplies page.
Step 1: Prepare your propagation chamber - It’s important that everything stays sterile. So wash the inside of your propagation chamber and the lid with soapy water, or sterilize it using rubbing alcohol. Then rinse it and wipe it dry with a clean towel.

Step 2: Add the medium - Add your general-purpose propagation medium to the box and spread it evenly over the bottom. The medium should be about 3-4 inches deep.

Step 3: Add water - The goal is to moisten the medium, but not make it soggy. Don’t pour or spray the water in too fast, or the medium could make a mess. I find it easiest to tilt the box slightly and then slowly pour the water down the inside of the box so it won’t displace the medium. If you added too much water to your propagation box, you can leave the lid off it for a day or two to allow the excess to evaporate before adding any cuttings.

Step 4: Add the plant cuttings - For best results, dust the stem of your cutting with rooting hormone before putting it into the box. Make a hole in the medium with your finger and place the cutting into the hole so the rooting hormone doesn’t rub off.

Plant it deep enough so that one or more leaf nodes are below the soil line. Then lightly pack the medium around the stem to ensure it comes in full contact with your cutting.

Make sure that none of the leaves on a cutting are below the soil line, and pinch off any that are laying on the surface of the medium or touching the inside of the box, as they may rot.

Step 5: Put the lid on the box - Put the lid on your propagation box. Air circulation helps prevent mildew growth and rotting. So if the lid is airtight, make some holes in it or prop it open slightly to ventilate the box.

I recommend using an electric drill with a small to medium sized drill bit to make the holes, because some types of plastic will crack if you try poking holes with a hammer and nail. Drill the holes 3-4 inches apart on the lid.

Moisten the soil with water by slowly running it down the inside of the box.

Plant your cutting into the medium and gently pack it around the stem to hold the cutting upright.

Put the lid on the box and move it to a bright and warm location.
Step 6: Add light - Place your propagation chamber in a bright area near a sunny window inside the house. Always keep it out of direct sunlight, or it will get too hot and cook your cuttings.

It’s best to keep your propagation box inside to protect it from wind, rain, bugs, and too much sun and rain. If you don’t have a sunny room to put it in, place a plant grow light directly above the top of the box.

Tip: You’ll know your cuttings have rooted when you see new growth on top, or they don’t move when you gently tug on them.

Step 7: Add bottom heat - For best results, place your propagation box on a heat mat. If you don’t have a heat mat, then put it in the warmest room of your home, or add a space heater. Optionally you could place your propagation box near a heat vent. If it’s too cold, your cuttings will not root.

Step 8: Monitor the humidity - Be sure to monitor the humidity level inside the box daily. There should always be some condensation buildup on the inside walls of the box, but it should never be dripping wet inside.

If there’s no condensation, that means it’s too dry and needs more water. If the walls and lid are dripping with water, then it’s too wet inside and needs more ventilation.

Step 9: Check the moisture level - You should also check the moisture level of the growing medium regularly. It should never be soggy or completely dried out, it’s best to keep it consistently moist.

To water your propagation box, use a gentle spray from the kitchen sink sprayer or a plant mister; you don’t want to disturb the medium once your cuttings are in the box. You could also tilt the box slightly and gently pour water down the inside walls.

Step 10: Check for roots - Check on your propagation box every few days to see if there are any new roots. Herbaceous stem cuttings will root in about 1-3 weeks (some will root in as little as a few days).

Soft or hardwood cuttings can take about 8-10 weeks or more. You’ll know they’re rooted when you see new growth on top of the cutting, or they don’t move when you give them a gentle tug.
**Propagating Plants With The Baggie Method**

If you don’t have the room to set up a propagation box, or you haven’t had the time to get it done, don’t worry! You can use the baggie method.

Just like a propagation chamber, a tented plastic bag can act like a mini greenhouse to keep the humidity high around a cutting. Here’s how to do it.

**Supplies Needed**
- 1 plant cutting
- 1 plant pot, 3-4” size
- General purpose propagation medium
- 1 clear plastic baggie (large enough to fit around the cutting and pot)
- 3-4 stakes (pencils, popsicle sticks, chopsticks, or something similar)
- Rubber band (optional)
- Rooting hormone (optional but recommended)

**Step 1: Prepare the pot and medium** - Wash your plant pot with soap and water and pat it dry. Fill it with your general purpose propagation medium, then dampen the medium with water.

**Step 2: Plant the cutting** - Dust the stem of your plant cutting with rooting hormone. Make a hole in the medium with your finger and place the cutting into the hole. Gently pack the medium around the base of the stem to hold it in place.

**Step 3: Place the stakes** - Stick your stakes into the medium in a circle around the inside edge of the pot so they’re surrounding the cutting. The purpose of the stakes is to hold the plastic up and off the cutting. If the plastic touches any of the leaves, they may rot.

**Step 4: Cover with the baggie** - Tent the plastic baggie over your cutting, the stakes, and the top of the pot. Then use a rubber band to fasten the plastic around the pot. Alternatively, you can put the entire pot into the baggie and tie it at the top if the bag is large enough.
**Tips For Using The Baggie Method**

The baggie method makes it super easy to get started with minimal equipment, and it's a great option for propagating your cuttings, but it does have a couple of disadvantages.

- This method is best used for small cuttings because it's difficult to properly tent plastic over the top of a larger cutting without the plastic touching the leaves.

- It’s more challenging to maintain a steady humidity level with the baggie method than it is with a propagation box. The humidity tends to get too high inside the tented plastic, and it can be difficult to properly vent it.

- It can also be hard to keep the plastic from touching the cutting. Even if it's not touching when you first set it up, the plastic tends to settle after a few hours. So it might end up touching some of the leaves.

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**Rooting Cuttings In Water**

Sometimes the easiest way to root certain types of cuttings is to put them in a vase of water. It's especially fun when you use a clear vase or jar, because you can watch the roots as they develop.

This method works best for plants with long, soft, fleshy stems. For example pothos, coleus, tradescantia, and ivy are all simple to root in plain water.

Succulents, cactus plants, and hardwood cuttings don’t reliably root in water, and oftentimes will only rot or shrivel up. Although there is no hard-and-fast rule here, so you'll definitely want to experiment.

**Supplies Needed**

- A vase of water
- Clippers or a knife

**Step 1: Take cuttings** - You can take cuttings from anywhere on the stem of the parent plant. Make them at least 4-5" long with several sets of leaves so there will be plenty of length on the stem to submerge in the water.

**Step 2: Remove the lower leaves** - Pinch or trim a few sets of the lower leaves to expose the stem. Make sure that you have enough length on the stem so that two or more leaf nodes will be submerged. However do not remove all of the leaves from the cutting.
**Step 3: Put cuttings into the vase** - Put the stems of the cuttings into the vase. I like to use a clear vase so that I can see the roots as they start to form, but any type of container that holds water will work.

**Step 4: Fill the vase with water** - Fill the vase with lukewarm water, making sure that none of the leaves are submerged or touching the water, otherwise they could rot. Also, the shorter the stems are, the shallower the water should be.

So, for example, if you want to root a spider plant stolon, then the water should be shallow enough so that only the root nubs are submerged. The cuttings may droop or even drop a few leaves after you put them into the vase, this is normal and they should pop back in a few days.

**Step 5: Find a spot for the cuttings** - Put your vase of cuttings in a warm and sunny spot, but keep them out of direct sunlight. The warmer and brighter the room is, the faster the cuttings will root.

**Step 6: Monitor your cuttings** - The water can evaporate quickly, especially if the air is very dry, so keep an eye on it. Never let the water level drop below the top leaf nodes or any of the starter roots on the cuttings.

**Step 7: Watch for root growth** - Most cuttings will start to show signs of root growth after a week. Though some will take longer, and others will take just a few days. Once the roots are about 3-4” long, it’s time to pot them up.

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Rooting Succulent & Cactus Cuttings

Cuttings don’t always need a moist, humid environment to form roots. In fact, a propagation chamber or vase of water can be too humid and wet for some types of cuttings, causing them to rot instead of rooting.

For that reason plants that like dryer conditions, like succulents and cacti, require a different technique for successfully rooting the cuttings. Below are the steps to follow rooting succulents from cuttings or leaves here.

**Supplies Needed**
- Cured succulent or cactus cutting(s) or leaves
- Plant pot (4-6” size, depending on how many cuttings you have)
- Succulent and cactus propagation medium
- Rooting hormone (optional but recommended)
- Clippers or a knife

*You can find links to all of these, and many other propagation supplies here... Plant Propagation Supplies
Step 1: Prepare the container - If you’re only rooting one cutting, then use a 4” pot or smaller. If you have several cuttings and/or leaves, then you can use a 6” pot or larger. Before using it, wash the pot well with soapy water, then rinse it and pat it dry.

Step 2: Fill the pot with medium - Loosely fill your pot with cactus and succulent medium. If the medium is bone dry, then you should add some water to moisten it. Just make sure it’s not wet or soggy. Give the water a few minutes to soak in before proceeding with the next step.

Step 3: Plant the cuttings - Dust the cut end of the stem, pad, or leaf with rooting hormone. For stem or pad cuttings, make a hole in the medium with a pencil or your finger, and gently place the cut end into the hole so the rooting hormone won’t rub off.

Then lightly pack the medium around the base of the cutting so it stays in place. For individual leaves, you can simply lay them on top of the medium or stick them into the very top layer. Don’t bury them very deep though, just the bottom ¼ or so.

Step 4: Place them in a protected spot - Put the pot in a warm spot where the cuttings will get bright, indirect sunlight.

The key to successfully rooting succulent and cactus cuttings is to keep the medium dry, but the air around the cutting fairly humid. If the air is very dry in your home, you can run a humidifier nearby or lightly mist the cuttings every few days (never to the point where water pools on them though).

Step 5: Wait for roots - Don’t water your cuttings at all while you wait for them to root. If the medium is too wet they will end up rotting.

In the right conditions, succulent and cactus cuttings should only take a few weeks to form new roots. Once you start to see new growth on the top of the cuttings, that’s a good sign that the roots have started forming.

You can root several different types of succulent cuttings in the same pot.

Lightly pack the medium around the base of the cutting so it will come in good contact with the stem, and so that the cutting stands upright on its own.

Place your succulent cuttings in a bright and warm spot while they’re rooting.

In the right environment, succulent cuttings only take a few short weeks to root.
Propagating Succulents In Winter - A Fun Experiment

It’s very easy to propagate succulent plants in the summer - all you have to do is stick a cutting in the dirt and walk away. Heck, sometimes they don’t even need your help, and the leaves that fall from the plant will root themselves.

But winter is a whole different story. Succulents go into a dormant state during the coldest, darkest months of the year. Getting cuttings to root during this time is much more challenging, because they tend to rot instead of growing roots.

But, don’t despair, you can still experiment with propagating your succulents all winter long. Here’s a fun method to try…

**Step 1: Take a cutting** - Take a leaf or stem cutting from your plant (or find one that dropped off by itself, as long as it’s still firm). You can dust the cut end with rooting hormone if you’d like, but that is optional.

**Step 2: Put the cutting on a window frame** - Place your cutting or leaf on the frame of a sunny window. I use my south facing window, but an east or west facing window will work too.

The window frame is a cold but sunny spot, and will provide the cutting with moisture from the condensation that builds up on the window.

**Step 3: Wait for roots** - After a few weeks, the cutting will start to sprout roots, or put on new growth around the bottom of the leaf. It’s fun and exciting to watch!

**Step 4: Pot it up** - Once the cutting has sprouted roots, you can pot it up. Be sure to use potting soil that is made for succulents, and plant the stem deep enough to cover all of the roots.

For leaves, you can cover the roots with a thin layer of soil, or bury about ¼ of the leaf. Give it a light drink of water, or continue to mist it until it’s more established in the pot.

If you don’t have a window frame to set cuttings on, you can try putting them into a dry, shallow plastic tray. Place the tray on a window ledge and lightly mist the cuttings every day or two (allowing them to dry out completely between misting). This will provide the same effect as the window frame.
How To Divide Plants

In this section, I'll give you detailed steps for how to propagate plants by dividing the bulbs, stolons, or offsets.

Before dividing any of your plants, it's very important to make sure the mother is well-hydrated, healthy, and free from pests and disease.

Trying to divide a plant that's droopy, dried out, or otherwise stressed could be fatal to both the mother and the babies. So water it well a few days before you plan to divide it.

Bulbs, Corms, Tubers, Rhizomes

Dividing bulbs, corms, tubers and rhizomes is a quick way to get a larger plant. You can do this with plants in containers or the garden. Examples include gladiolus, tuberous begonias, irises, elephant ears, and asiatic lilies.

Tip: Dividing bulbs, corms, tubers and rhizomes is a quick way to get a larger plant.

It can sometimes be a tedious process, and usually requires a bit more physical work than other propagation methods. That's because you will need to dig up the whole plant or remove it from the pot before you can divide the bulbs.

Also keep in mind that some of the bulbs you divide can take a year or two before they are mature enough to bloom.

However, it's well worth the effort to multiply your favorite plants, and usually results in a much larger start than you could get by using other methods. Below are the steps for how to do it.

Supplies Needed

- Hand trowel or garden shovel
- Sharp knife or pruners
- Garden gloves (optional)

Step 1: Dig up the plant - Make sure to start digging at least a foot or more away from the stems that are coming out of the ground. If you get too close to the center of the plant, you could end up cutting or destroying the bulbs. If your plant is in a container, then carefully slide it out of its pot.

Step 2: Loosen the roots - Brush or shake as much of the soil off of the rootball as you can. Then slowly work to tease apart the roots to loosen them up. If you only want to separate a couple of bulbs, then you just need to work to loosen the roots around those few bulbs.
Step 3: Separate the bulbs - Once you start loosening up the rootball, some of the bulbs will usually also begin to loosen up, and easily separate from the clump. Find the roots that are attached to the bulbs you want to remove, then you can either tease them apart or use your pruners or knife to cut the roots to divide them from the main clump.

Step 4: Replant the mother - After you remove the bulbs from the main clump, replant the mother into the same spot or container, or relocate it to a new one. Make sure to plant it at the same depth as it was before, and that all of the bulbs and roots are covered with soil.

Step 5: Pot up the bulbs - You can either plant the bulbs you divided into the garden or pot them up into a container. Either way, be sure to plant them at the same depth as they were before. If there aren’t any stems on the bulbs, then plant them with the eyes or pointed ends facing up. You could clump them together to form one large plant, or plant them individually for several.

Stolons
Stolons (also called shoots, plantlets, or runners) will naturally root themselves wherever they touch the soil. You could wait to divide them until they propagate themselves, or you can speed up the process.

A few common examples of plants you can propagate by stolons are strawberries, ajuga, sempervivum, and spider plants. The plantlets are very easy to remove and root if you don’t want to wait for them to propagate themselves, or if the mother is growing in a pot.

However, it’s important to wait until the stolons are mature enough to survive on their own before you remove them from the mother. It’s easy to tell which ones are ready once you know what to look for. Below are the steps for how to do it.

Supplies Needed
- Propagation box
- General purpose propagation medium
- Sharp precision pruners
- Rooting hormone (optional)
- Garden gloves (optional)

Step 1: Find a mature stolon - The best time to remove stolons from the mother plant is after they have a few starter roots or nubs of their own. If the stolon doesn’t have any signs of starter roots or nubs on the bottom, it’s probably not mature enough to survive on its own.
Step 2: Remove it from the mother - Once you determine a plantlet is ready to be rooted, you can remove it from the mother by cutting it off at the end of the stem. Sometimes they will come off easily when you disturb them, which is a good sign they’re ready to grow on their own. If there’s still a long empty stem protruding from the mother after you remove the stolon, cut that off at the base or just below the next plantlet and discard it, as it won’t grow anymore.

Step 3: Root it - You could try rooting the plantlet in a vase of water, as long as the leaves aren’t submerged, or by using the baggie method. But I tend to have much better success using my propagation box. Dust the bottom with rooting hormone first for best results. Then make a hole in the medium, place the bottom end of the plantlet into it, and gently pack the medium around the stolon to hold it upright.

Step 4: Watch for roots - Keep the medium moist and warm, and your stolons should root in 1-2 weeks, or even as short as a few days. To check if they’ve rooted, give them a gentle tug. If they don’t move, then they have roots.

Offsets
Removing offsets (also called suckers, babies, or pups) is a quick way to expand your collection, and many times you can get several of them from one plant.

Tip: You can usually get several offsets from one plant, which means you’ll end up with lots of new baby plants at once!

Common plants that produce offsets include aloe vera, agave, haworthia, banana, echeveria, and snake plant, to name a few.
The process of separating the babies from the mother plant can be a little more labor intensive than removing stolons. That's because you'll usually need to pull the mother plant out of its pot, or dig down deep around it in the garden to get to the offsets.

This is easier for some plants than others, and can be tricky sometimes, especially for well-established or thick-rooted ones. But once you get through the dirty work, you'll likely be rewarded with a plethora of new babies. Below are the steps for how to do it.

**Supplies Needed**
- Hand trowel or garden shovel
- Sharp knife or pruners
- Rooting hormone (optional)
- New container (optional)
- Potting soil (optional)

**Step 1: Dig around the base of the pups** - If your plant is in a pot, carefully slide the entire rootball out. In the garden dig down deep enough until you can see the bottom of the pups, at the point where they're attached to the mother. Take care not to damage the pups or the roots as you dig.

**Step 2: Determine if the offset is mature** - Gently brush back the soil around the base of the pup to see if it has developed its own roots. If it doesn't have any roots, then it's not ready to be removed from the mother plant, and it may not survive on its own. So keep digging until you find a pup that has a few of its own roots.

**Step 3: Untangle the roots** - Once you find an offset that's mature enough, it's time to remove it. Gently tease apart the roots of the pup and the mother plant, working to free as many of the pup’s roots as possible. Try not to break any of the pup’s roots in the process (have patience and go slow, this may be a tedious task).

**Step 4: Remove the pup** - If the stem of the offset is still attached to the mother plant, sever the connection with a sterile knife or clippers. Try not to cut off any of the pup’s roots, just sever the connection to the mother plant if possible.

Once the connection is cut, it will be much easier to untangle the rest of the pup’s roots from the mother plant. Continue to tease the roots of the pup away from the roots of the mother plant until the pup is free.

Aloe vera offsets grow around the bottom of the mother plant and pop up from below the soil.

Gently tease apart the roots of the pup from the mother plant, taking care not to break any.

Once the offset is free from the mother, you can pot it up right away.
Step 5: Replant the mother - After you’ve successfully removed all of the offsets that you want, slide the mother plant back into the pot or replant it into the garden. Make sure to position it at the same depth as it was before.

Step 6: Pot up the baby - If the offset you removed has tiny roots, you can dust them with rooting hormone to help it develop strong roots faster, but this is completely optional. Plant the pup into its own pot or in the garden at the same depth it was before, taking care to cover all of the roots with soil.

How To Propagate Plants With Layering

In this section, I’ll give you detailed steps for how to propagate plants with the layering technique using two basic methods: air layering and soil layering.

It’s important to note that both of these methods work best during the spring or summer months, or in a warm and humid environment. You likely won’t have very good success if it’s cold or dry.

Air Layering

Once you master the art of air layering, you’ll easily be able to fix leggy plants or root tip sections without the risks that come with rooting the cuttings. It’s a great way to get a large plant, and you don’t have to fuss with any special equipment taking up space in your house.

Some of the easiest plants to start with are ones that have rigid stems or canes and tend to lose their lower leaves as they mature. Examples include dieffenbachia, corn plant, fiddle leaf fig, rubber plant, and ti plant.

This is the most advanced and complex propagation technique that we’ll discuss in this book, and it will definitely take some time and patience to master. So don’t give up if you fail after a few tries, keep experimenting and eventually you’ll find success. Here are the steps to get started.

Supplies Needed

- Sphagnum moss
- Plastic wrap
- Twist ties
- Sharp knife or pruning shears
- Toothpick (optional)
- Rooting hormone (optional but recommended)
Step 1: Select a spot on the stem - Determine how far down the stem you want to propagate your plant. I recommend doing it at least 4-5" below the foliage crown so your new start will have a sizable stem. Then find a leaf node that’s in the area of where you want to root the stem.

Step 2: Make a slit in the stem - Carefully make a slice in the stem at about a 45 degree angle just below the leaf node with a sharp knife to make a wound. The slit should be about ½ to ¾ of the way through the stem. Alternatively you could notch out a small section of the stem instead of making a slit.

Step 3: Prop open the slit - If you chose to make a slit rather than a notch, then you’ll need to prop it open to prevent it from growing back together. Insert a toothpick, or something similar, horizontal to the slit to hold it open.

Step 4: Dust the wound with rooting hormone (optional) - Dust the cut part of the stem with rooting hormone. This is optional, but I highly recommend it, especially when you’re first starting out. It will help to speed things up, and give your stem a better chance of rooting.

Step 5: Wrap with sphagnum moss - Moisten your sphagnum moss first by soaking it in water, then ring out the excess. Wrap the area in and around the wound with a thick layer of damp sphagnum moss.

Step 6: Cover with plastic - Wrap the sphagnum moss with plastic wrap so that it is completely covered. This will work to keep the sphagnum moss in place, and also holds in the moisture so it doesn’t dry out.

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**Step 7: Secure it to the stem** - Tie both the top and bottom of the plastic wrap (above and below the wound) using twist ties to secure it to the stem. Make sure the plastic is completely closed so that it holds in the moisture.

**Step 8: Wait for roots** - Once you see healthy, thick new roots growing out of the moss, that means the start is ready to live on its own. Remove the plastic and cut the stem just below the roots. Pot up your new baby right away. Eventually the mother plant will form new leaves on the stem right below the cut.

**Soil Layering**

In contrast to air layering, soil layering is usually much easier. It’s another great way to get a large plant without the need for special equipment, or risking trying to root cuttings.

Soil-layered starts also tend to have a much higher survival rate than cuttings, since they can still get nutrients and moisture from the mother plant as they develop their own roots.

However, it does require very high humidity and warm, moist soil to be successful. If it’s dry or cold, the sections likely won’t root. But the good news is that we won’t lose anything if the sections don’t take, like we would if our cuttings didn’t root. The sections will just happily keep on growing.

Easy plants to start with include any type of vine, or those with fleshy, pliable branches. Examples include ivy, pothos, philodendron, and even some crops, like squash, cucumber, raspberries, and tomatoes. This is also an alternative way to root offsets.

**Supplies Needed**

- Paper clip or a piece of thin wire
- Water
- Pruning shears or sharp knife
- Rooting hormone (optional but recommended)
- Propagation box or plant pots (optional)
- General purpose rooting medium (optional)
**Step 1: Bend the stem down to the soil** - Find a pliable branch or vine that’s long enough to lay on the ground. If your plant is in a pot, you could either put the whole thing into your propagation box (if it fits) or position a second pot filled with moistened growing medium next to the mother plant. Then carefully bend the branch or vine so that it’s touching the soil, taking care not to kink or break it.

**Step 2: Select an area to root** - Choose a spot on the stem where you want the roots to grow. It should be at least a few inches below the end of the stem, and there should be a couple of leaves several inches above the point that you choose.

**Step 3: Prepare the stem for rooting** - Use a sharp knife or clippers to slit the stem or notch it at the point where you want it to grow roots to make a small wound. Then dig a shallow hole or trench at the point where the wound touches the soil or medium.

**Step 4: Apply rooting hormone (optional)** - Dust the wound with rooting hormone. This step is optional, but I highly recommend it, at least starting out. It will help speed up the process and give you a better success rate.

**Step 5: Bury it** - Bury the wounded part of the stem with soil or growing medium and firmly (but gently) pack it down. If the stem won’t stay put, you can tack it down with a paperclip or a similar piece of thin wire that’s been bent into an upside down U shape, or place a rock or brick over the top of it in the garden.

**Step 6: Wait for roots** - Keep the soil moist at all times, and never allow it to dry out. You’ll know your buried stem has formed roots when you gently tug on it and it won’t move. When that happens, you can remove it from the mother plant, and replant it or pot it up.
CARING FOR YOUR CUTTINGS

Planting your cuttings is one thing, but getting them to actually take root can be a whole different story. Sometimes it can be difficult to maintain the delicate balance that they need to survive and grow their own roots.

Below I'll go into detail about how to properly care for your cuttings so that they'll have the best chance of rooting, and you'll have the best success possible.

Water

To survive and form roots, most types of plant cuttings must be kept in a consistently moist environment. If they ever dry out, they will shrivel and die pretty quickly. On the other hand, if they’re too wet they will only rot. It’s a delicate balance, but it’s not complicated to get it just right.

The trick is to thoroughly moisten the propagation medium and make sure there aren’t any dry spots before inserting your cuttings. Dry patches in the medium will absorb the moisture out of the cutting, which will ultimately be fatal.

The growing medium should remain evenly moist, but not soggy or sodden. If you struggle with this balance, get yourself an inexpensive soil moisture gauge to make it easy.

You can also sprinkle the cuttings with water or mist them before inserting them into the moist medium, if desired (do not wet furry-leaf plants, succulents, or cacti cuttings).

As long as the medium is evenly moist from the start, and you maintain the right level of humidity, your cuttings shouldn’t need to be watered again until after they form roots.

If your medium starts drying out before the cuttings have roots, you can mist it or lightly spray it with water to dampen it. Don’t pour water over the medium, or you could displace the cuttings.

Humidity

Plants absorb moisture through their leaves, and this is how cuttings can survive for a short time without roots.

Without adequate humidity, the cuttings would quickly dry up and die. So it’s crucial to maintain sufficient humidity levels around your cuttings for them to survive long enough to grow roots.
The easiest way to maintain a consistent amount of humidity is to use a propagation chamber. But the baggie method or frequent mistings can also work, though you'll have to take extra care to make sure they don't get too wet. You can buy a humidity monitor to make it easy to check the levels.

Though succulents and cactus plants don't like a lot of moisture, they also tend to root faster when the air humidity is high. Don't mist them or cover them with plastic though, and keep the soil on the dry side.

Airflow

Although it's essential to keep the humidity level high around your cuttings, it's also important that they get enough ventilation and airflow.

Otherwise the environment will become too wet for them, and the cuttings will rot or mold will start to grow. This is a common problem with the baggie method, and can also happen when your propagation box is airtight.

Some moisture buildup on the inside of the plastic is normal. However, the humidity level is getting too high when water begins dripping from the top like it's raining, or it's running down the inside of the plastic.

To allow for better airflow, simply poke a few holes in the top of the plastic, or prop the lid open on your propagation box to ventilate it. You could also remove the lid for a few hours to allow some of the excess moisture to evaporate if the medium becomes overly wet.

Tip: Cuttings need adequate airflow to avoid issues with mold and rotting.
Light

The more light your cuttings get, the faster they will form roots. You can place the cuttings near a bright and sunny window or add a grow light. Be careful though, because direct sun will likely be lethal for the cuttings under plastic or in a propagation box.

Direct sunlight will raise the temperature under the plastic significantly, causing the greenhouse effect, which can end up burning or frying the tender cuttings inside.

Grow lights are ideal because you can control the intensity of the light, and also the length of time the cuttings receive it.

Hang them directly over the top of your cuttings or propagation chamber. Then set the grow lights on a timer so the cuttings will get consistent light for 12-16 hours a day.

Temperature

Temperature is also an important factor, and cuttings need a consistently warm environment for healthy root development. Ideally, you should keep the temperature between 70-75°F (21-24°C) at all times.

If it’s too cold, your cuttings will not root, and may end up rotting instead. Excessive heat can also hinder root formation, and if it’s really hot it will damage or kill your cuttings.

To keep your cuttings at a consistent temperature, you can place a heat mat under the pot or propagation box. Then either put a thermometer inside the box or check the medium regularly with a soil thermometer.

Checking For Signs Of Root Growth

Different types of plant cuttings require different lengths of time to form roots. If you have various cuttings in your propagation box, don’t expect them to all root at the same time.

Some can start to sprout new roots after only a short few days, while others can take a month or more. Check on them every couple of days to see if there are any signs of root growth.

Here are some of the signs to look for…

1. Aerial or surface roots growing above the soil.
2. New leaves forming on the top of the cutting.
3. There’s resistance when you gently tug on the cutting.
4. You can see roots through the bottom of the propagation chamber or pot.
POTTING UP YOUR NEW BABIES

It’s very exciting to see the first signs of new roots on your cuttings, it means you’ve successfully propagated them. Woohoo, congratulations! Now it’s time to talk about potting them up and turning them into actual plants.

Don’t jump the gun here though. It’s best to wait until the roots are at least 3-4” long before you pot them up. If you do it too early, they may not survive.

On the flip side, if you leave them in the propagation medium or water for too long, they may have a harder time becoming established in regular potting soil.

Hardening Off

Once your cuttings have formed roots, it’s time to prepare them for growing in a pot. But before you pot them up, it’s important to determine whether or not you need to harden them off first.

Hardening is the process of slowly preparing your cuttings for the transition to a pot. You see, when starts get used to living in the ideal warmth and humidity of a greenhouse, they sometimes have a difficult time adjusting to a life outside of that environment.

Some cuttings will survive the transition without any problems, but others will suffer and may ultimately die if they aren’t properly acclimated.

This is something you should definitely do if you use either a propagation box or the baggie method. Don’t worry, it’s not complicated. Here are the steps to take…

Tip: For the best success, get into the habit of hardening your cuttings before potting them up.

Step 1 - Remove the bottom heat - If you still have the bottom heat on, then turn it off or remove the container from the heat source. If you have grow lights hanging over your cuttings, you can leave those on.

Step 2 - Reduce the humidity - To reduce the humidity, you can simply prop open the lid of the box a couple of inches. If you used the baggie method, open up the holes in the plastic to make them one inch larger. Leave it this way for 5-7 days.

Step 3 - Give them more air - Slowly prop the lid or open up the holes in the plastic baggie a little more each day, over the period of a week. Then remove it completely so the cuttings are fully exposed to the open air. Now they’re ready to be potted up.

Tip: Wait until the roots are 3-4” long before potting up your new babies.
Step By Step Instructions For Potting Up

Now that your cuttings or divisions are ready to be potted up, let’s jump into the details. Below are the steps for how to pot up your babies once they are ready. Gather all of your supplies beforehand so your cuttings don’t dry out in the process.

**Supplies Needed**
- 3-4” pot
- Potting soil
- Spoon or small trowel
- Water

**Step 1: Prepare the pot** - I recommend using a 3-4” size pot for planting your new babies. If the pot is too large, the plant will focus on growing roots to fill the space, rather than growing leaves. It’s also much easier to accidentally overwater plants when the pot is too large. Wash the pot with soap and water and pat it dry.

**Step 2: Prepare your soil** - For most types of plants you can use a general purpose potting soil. But I recommend using succulent and cactus soil for desert plants, otherwise you risk overwatering them. If the soil is bone dry, then you should moisten it first. Fill the bottom of the pot with about a ½” of soil and pat it down firmly.

**Step 3: Gently remove the cutting from the growing medium** - Don’t pull the cutting out, or you might break off its tender roots. Use a trowel or your hand to dig under the roots and gently lift the cutting out of the medium. You don’t need to remove the propagation medium from the roots before potting it up, you can just leave it on.

**Step 4: Plant your baby** - Position your start so it’s at the same depth as it was in the propagation medium or when it was attached to the mother, or slightly deeper to ensure all of the roots are covered.

Carefully hold it with one hand and use a spoon or small trowel to add potting soil around the roots to fill the pot.

Once it’s full, gently press down the soil to hold the baby in place. Add more soil as necessary until it fills the pot and is about ½” from the top rim.
Step 5: Water your new plant - Gently water your new plant to dampen the soil. It’s normal for the soil to settle after you water it. If that happens, simply add more to fill in any holes and to top it off. Allow the excess to drain completely out of the bottom holes.

Step 6: Place it in a bright location - After potting it up, put your new plant back under the grow lights or move it next to a bright window out of the direct sunlight. If it’s a sun-loving plant, slowly acclimate it to the direct sunlight once it has become established in its pot.

Step 7: Monitor it for signs of severe shock - It’s normal for cuttings to experience some transplant shock after being potted up. So you may see some minor drooping, which is normal. However, if it wilts or droops significantly, or begins dropping leaves, then it’s more severe. If that happens, don’t panic. Leave it in its pot and place it back into the propagation box (pot and all), or tent a plastic baggie over the top for a few days until it recovers. Then slowly harden it off again. Do not try repotting it.

Fertilizing

Once your baby plant has spent a few weeks in its new pot, you can start fertilizing it if you’d like. However, remember that their roots are still fairly delicate at this point, so a full dose of fertilizer could damage them.

Tip: Start feeding your new babies ¼ strength of liquid fertilizer, then gradually increase it to full strength as the plant becomes established in its pot.

It’s best to start by using a ¼ strength dose of liquid fertilizer at first. Then gradually increasing that to ½ strength, and eventually to full strength once the plant becomes fully established in the pot.

I recommend using an organic fertilizer like fish emulsion or compost tea, rather than a synthetic chemical brand. Chemical fertilizers can easily burn sensitive plants, especially small starts with tender new roots.
TROUBLESHOOTING COMMON PROPAGATION PROBLEMS

One of the biggest frustrations that comes with propagating plants is following all of the steps perfectly… only to end up having problems, and you don’t know why.

Sometimes things can go wrong, even if you did everything right - that’s just part of the learning process. But the good news is, once you learn the basic problems and how to prevent them, you’ll be able to have even better results.

In this section, I’ve listed the most common problems you may face when propagating your plants, what causes them, and how you can either avoid them or fix them.

**Leaf Drop**

Some amount of leaf drop is normal when you’re propagating plants. But if a cutting or division is losing most or all of its leaves, then something is wrong.

**Common causes:** Leaf drop can be caused by a host of problems, including shock, improper watering (either too much or too little), low humidity, extreme heat, bugs, or rot. Inspect your cuttings and the environment to figure out exactly what’s causing it.

**How to fix it:** Check to make sure the growing medium or soil isn’t dried out or soggy, that the temperature is not above 75°F (24°C), and that the humidity level is high. If the cutting is rotting, infested with bugs, or completely dried out, then remove it from the propagation box and discard it.

**Prevention tips:** Ensure that all of your tools and equipment are sterile before taking cuttings or divisions, and that the parent plant is healthy and bug free. Review the section above about caring for your cuttings, and always maintain the ideal environment for them.

**Mold Growth**

With high humidity comes mold growth, and your propagation box is no exception. If you see any mold beginning to form in your propagation chamber, then it’s important to take immediate action so it doesn’t ruin all of your cuttings.

**Common causes:** Mold growth is a sign that the humidity and moisture levels, and/or the temperature in your propagation box are too high. It can also happen if you use regular potting soil rather than the proper growing medium, or if your medium, tools, and/or equipment are not sterile.
**How to fix it:** The easiest way to stop mold growth is to ventilate your propagation box and turn down the heat, if necessary. You can either prop open the lid a bit, or drill a few holes in it.

If the mold gets out of hand, you might want to consider tossing out the medium, cleaning the box, and starting over with a fresh batch of medium and cuttings. If any of your cuttings have mold on them, remove them from the box immediately and discard them. Otherwise the mold has a better chance of spreading to your other cuttings.

**Prevention tips:** Ensure the growing medium is moist but never wet or soggy, and take great care not to overwater. Never let the temperature get above 75°F (24°C). Always use a sterile medium and ingredients, and thoroughly clean your equipment before starting.

**Gnats**

Fungus gnats, also called soil gnats, are tiny bugs that look similar to fruit flies. They live and breed in wet soil, and are a common problem in propagation boxes. They’re generally just an annoyance, and won’t usually cause harm to your cuttings.

However, they can multiply very quickly and spread to nearby houseplants if you don’t get rid of them.

**Common causes:** Fungus gnats come either from outside, other plants, using the wrong type of soil, or a medium that’s not sterile. The main cause of having an infestation in your propagation box is keeping your growing medium too wet.

**How to fix it:** If they become a major problem for you, the only way to get rid of them is to allow the medium to dry out completely, or replace it with fresh growing medium. Wait a few weeks before you start propagating again to ensure all the adults are gone. [Read more about how to get rid of fungus gnats.](#)

**Prevention tips:** To avoid a fungus gnat infestation in your propagation box, keep it indoors at all times. Also, work to eliminate gnats from your houseplants, if you have any, or they will just find their way into your propagation chamber again.

**Other Bugs**

If other bugs, such as aphids, scale, whiteflies, or mealybugs, appear on your cuttings, then you have bigger problems. In this case, act fast to get rid of them as quickly as you can.

**Common causes:** The adult bugs, nymphs, or eggs came in on one of the cuttings.

**How to fix it:** While you certainly could try treating your cuttings, it can be extremely difficult to get rid of the bugs. Most of the time it’s much easier to start over.
I recommend discarding the entire contents of your box, then disinfecting everything with soapy water, bleach, or rubbing alcohol. Allow the box to dry completely before starting over with a fresh, sterile growing medium and clean, bug-free cuttings.

**Prevention tips:** To avoid an infestation in your propagation box, make sure to inspect cuttings for bugs or clean the leaves before putting them into the box, especially from plants that are outdoors or in the garden. Read more about how to control houseplant bugs.

**Shriveling / Drooping**

Though minor drooping is normal for cuttings and divisions, shriveling is not. If your baby is starting to shrivel up, then you should work to quickly figure out what the problem is so you can fix it ASAP.

**Common causes:** Severe drooping or shriveling are usually a sign that the cutting likely isn’t getting enough moisture. That means the medium is too dry, the humidity is too low, or both. But it could also be caused by rot or because the cuttings weren’t taken or prepared properly.

**How to fix it:** Check the dampness of the growing medium and the humidity level inside the box. Add more water if the medium feels dry, or if there’s no precipitation buildup inside of the plastic. Water and mist new divisions if they are dry. Inspect the cutting or division to make sure it’s not rotting or completely dried out.

**Prevention tips:** Ensure your growing medium never dries out, and always keep the humidity high around the cutting. If you’re not using a propagation chamber, you could mist the cuttings once or twice a day to help keep the humidity high around them. Review the section above about how to properly take and prepare cuttings to ensure you’re doing it correctly.

**Cuttings Not Growing Roots**

Another common issue with cuttings is that sometimes they never take root. But most of the time this is a very easy problem to fix with a few minor adjustments to the environment.

**Common causes:** When cuttings don’t root, that usually means the temperature is either too hot or too cold, the growing medium is too dry, the humidity or lighting is too low, or the cutting is either dried out or rotting.

**How to fix it:** Most types of cuttings need a bright, warm, and moist environment to trigger rooting. Maintain an even temperature range of 70-75°F (21-24°C), keep the humidity high and the medium moist, add grow lights, and check that the cutting is still healthy and not completely dried out or rotting.

**Prevention tips:** Dusting the cut end with rooting hormone will encourage healthy roots and speed up the process. Never allow the medium to dry out completely, and add bottom heat and grow lights to encourage rooting.
Cuttings Rotting

Rotting is less common for divisions, but probably the most common problem you will run into when trying to root cuttings. That’s because they need a lot of humidity to grow roots, but sometimes it can get too wet and cause them to rot instead of rooting.

**Common causes:** Rotting is usually caused by keeping your propagation medium too soggy and/or the humidity too high. But it can also happen when your tools aren’t properly sterilized, which can infect the cutting with bacteria or disease, or if you’re using the wrong type of medium.

**How to fix it:** Unfortunately, once a cutting starts rotting there’s not much you can do to save it. If it’s a large cutting and only the very bottom is rotting, you could try pruning off the rot and restarting the cutting. Be sure to remove rotting cuttings from your propagation chamber right away to avoid issues with mold.

**Prevention tips:** Make sure your propagation medium is never soggy or overly humid (vent the box if you accidentally overwater), and always use sterile equipment when working with cuttings. Dusting the cut end with rooting hormone (which is antibacterial) before rooting it can also help.

### PROPAGATION CHART FOR COMMON PLANTS

There are so many plants in the world that it’s impossible to discuss exactly how to propagate each one individually.

But once you can recognize similar plant types and their basic growth patterns, you will be able to propagate any plant that you want - whether it’s your favorite houseplant or the plants out in your garden.

To help get you started, I’ve put together a propagation chart for some of the most common indoor and outdoor plants.

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<thead>
<tr>
<th>Common Name</th>
<th>Botanical Name</th>
<th>Stem Cuttings</th>
<th>Leaf Cuttings</th>
<th>Bulbs/Corms/Tubers</th>
<th>Stolons</th>
<th>Offsets</th>
<th>Air Layering</th>
<th>Soil Layering</th>
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Propagating plants is the best way to expand your houseplant collection or your gardens, even on the tightest of budgets.

All types of plants reproduce and multiply themselves, and by learning how to propagate them, you’re just enhancing what they do naturally.

Some plants are easier to propagate than others, but there are plenty that you can grow at home yourself with very little equipment or tools required.

To set yourself up for success, start with the easiest ones that you have, and then experiment with others as you gain experience and confidence.

Look around your home or yard. You may already have all the plants you need to fill a new garden area or expand your houseplant collection as much as you want.

If you don’t have the plants you’d like in your home or garden yet, talk to your friends and neighbors to see if they would be willing to share. Once you expand your own collection, you can pay them back with tons of new plants.

Once you get the hang of it, you’ll be able to propagate any type of plant that you want!
RELATED PRODUCTS

If you enjoyed my *Plant Propagation eBook*, you'll also love these related products. See the full list of my product offerings here.

Growing and collecting indoor plants is a fun hobby, but keeping them thriving can be a BIG challenge! In this eBook, you'll learn all you need to know to successfully maintain happy and healthy houseplants!

There's nothing worse than finding bugs on your beloved indoor plants! This eBook will show you how to figure out what pest is infesting your houseplants, and effective methods to get rid of them FOR GOOD!

**Learn More**

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- **Winter Sowing Seeds**: How to Start Seeds Outside in Snow and Freezing Cold
  - Learn More

- **Seed Starting Online Course**: How to Successfully Grow Any Plant that You Want from Seed
  - Learn More
Hi, I'm Amy Andrychowicz, the creator of Get Busy Gardening®, and author of the book *Vertical Vegetables: Simple Projects that Deliver More Yield in Less Space*. I am also the author of several other gardening eBooks, [which are available for sale here](#).

I've been gardening for most of my life and got my green thumb from my parents. Gardening is my passion and I love all types, indoor and outdoor; including growing vegetables, herbs, annuals, perennials, succulents, cacti, and tropical plants - you name it, I've probably grown it!

Until recently, I gardened in Minneapolis, MN, zone 4b, which is one of the hardest climates to grow in. Now I'm learning how to garden in a whole new climate, San Diego, CA, zone 10b, which is fun and exciting, but certainly has its own unique challenges.

I strongly believe that there is no such thing as a brown thumb - anyone can be a gardener if they want to be, it just takes a little practice. My goal is to help you create your dream garden, whether it is indoors or outside.

So whether you're a first time homeowner, gardening newbie, or a seasoned expert, I've created a place for you to find ideas and knowledge so you can turn your dream garden into a reality.

**Come and join the fun over at [GetBusyGardening.com](https://www.getbusygardening.com)**, and be sure to [sign up for our free email newsletter here](#).

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