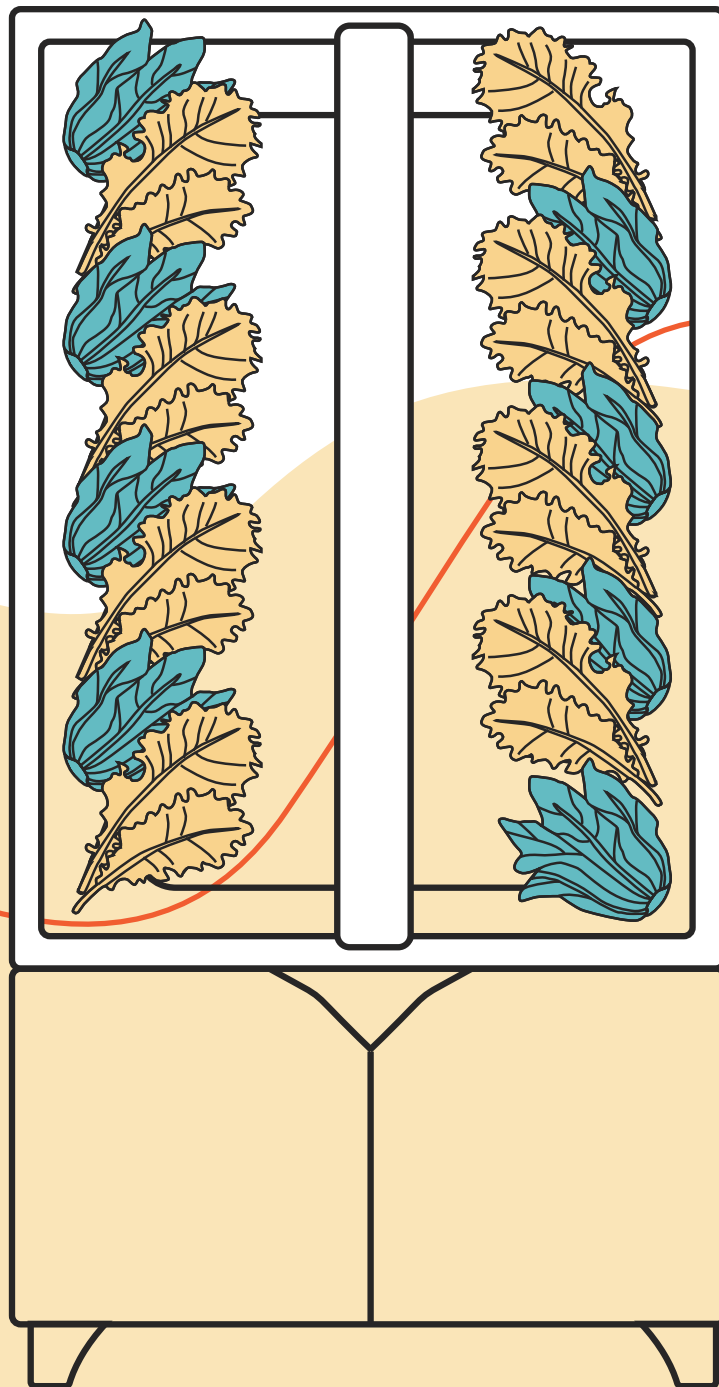


JUST VERTICAL OPERATIONS MANUAL

# THE AEVA



# The Ultimate User Handbook

Welcome to the food revolution! You are embarking on a journey towards a healthier and happier home. We are so glad that you could join us.

The important changes the world needs only happens because of people like you. This guide has everything you need to successfully grow with the AEVA.

We believe in our product and have backed it with a 2-year warranty.

This guide was written by all of our amazing engineers, scientists, and designers. If you have any questions, please reach out to us at [support@justvertical.com](mailto:support@justvertical.com)



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# GETTING STARTED

## Set-up

Setting up the AEVA is very simple and, thanks to a little bit of work on our end, you'll need just a few quick minutes once it arrives to get growing. We've kept it quick for you because you have better things to do (like tasting our 10 different kinds of kale!)





# Step-by-Step

1

Choose a nice place to show off your AEVA. It needs to be near an outlet and ideally has neutral light with a room temperature of 18 – 25 degrees Celsius.

2

Unpack and make sure all of your parts are inside the cabinet. You will find:

- 1x GFC attachment
- 1x 12L BPA-free water reservoir
- 1x Submersible pump in your water reservoir
- 1x Timer for lights
- 1x Wall anchor and screws
- 1x Seedling Kit:
  - 16x Starter seeds
  - 1x 60mL Vega A nutrient bottle
  - 1x 60mL Vega B nutrient bottle

3

Set your light timer (the one with two outlets) to when you want your lights to turn on and off. Raising a segment or 'slice' of the timer will turn the lights off for that period of time. For the starter kit, 18 hours of light is ideal. If you want your lights OFF from midnight to 6AM raise the slices between 12AM and 6AM.

4

Your irrigation is pre-set and as soon as you plug it in it will automatically begin watering your plants 48 times a day with 20 seconds on and 30 minutes off.

5

Check that your clear hose (which supplies the water) is firmly into the tee (give it an extra push just in case you are stronger than us!) and is running into the reservoir.

6

Make sure your reservoir is directly under the black drain and fill your water reservoir with cold tap water.

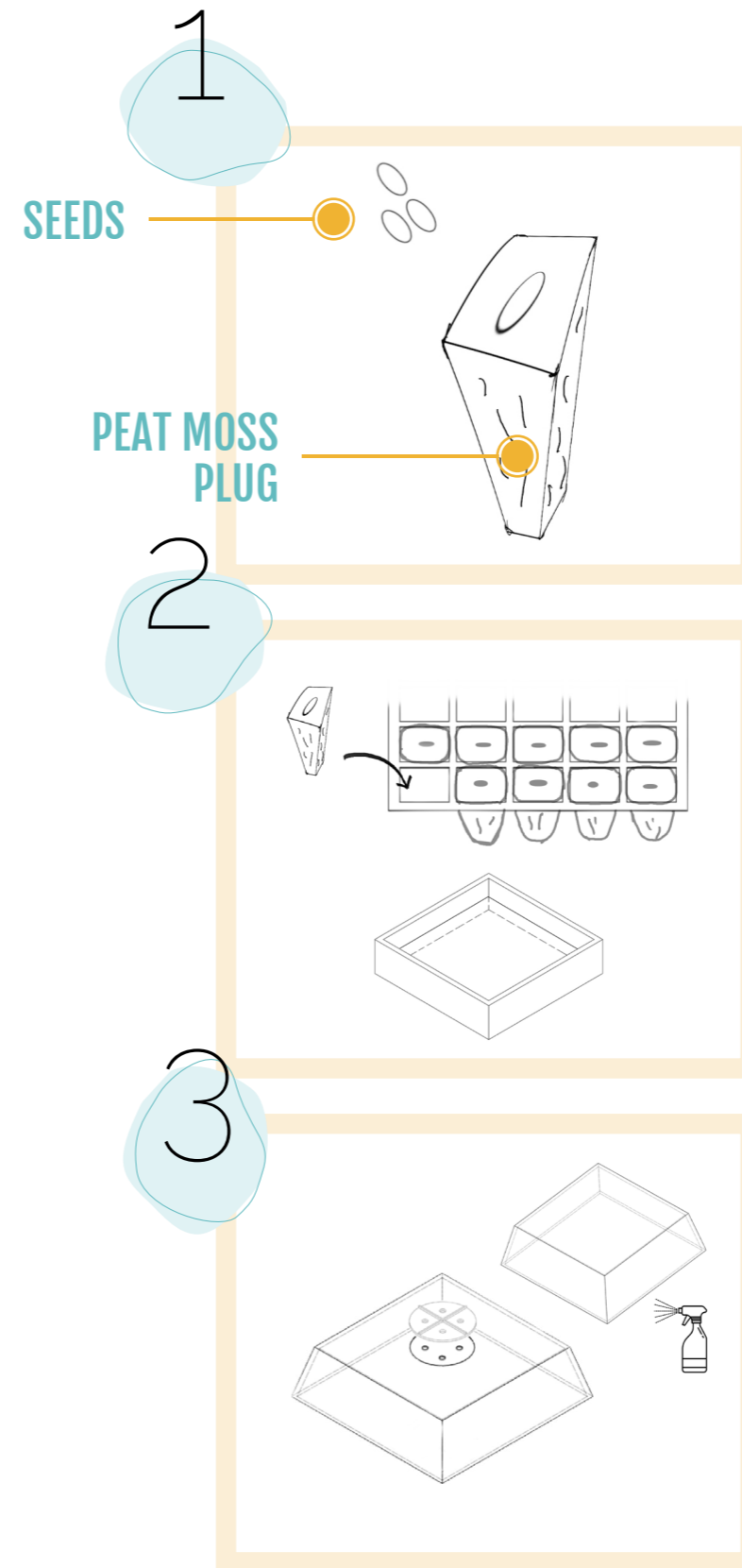
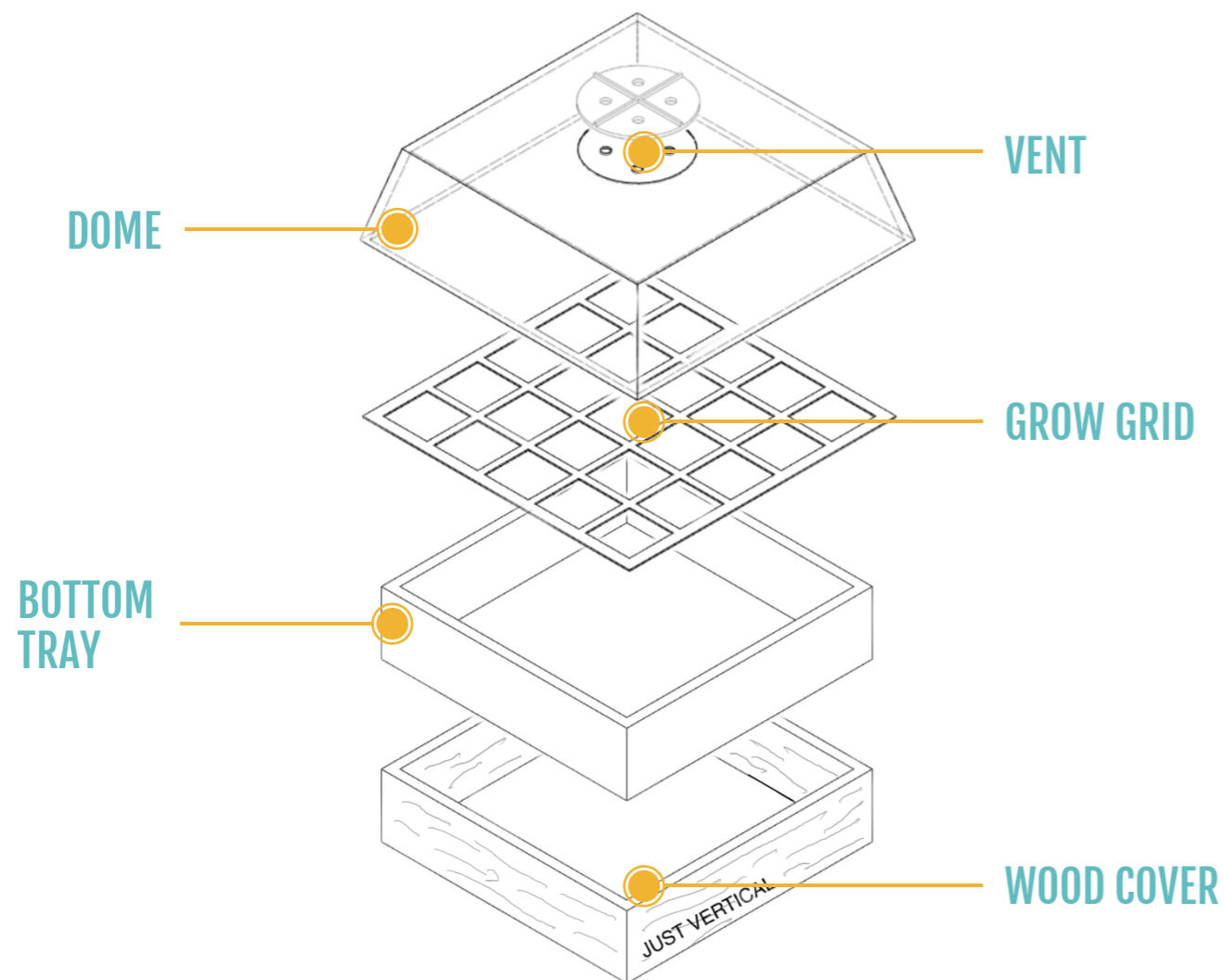
7

Plug your AEVA in and press the 'reset' button on the GFCI. Your AEVA will now come to life. If the lights and pump don't turn on, check that the power bar is switched on and the timers are in the right position (try turning the dial on the timers). If you still have issues please reference the troubleshooting section.

# Planting Seeds

When you order seeds from Just Vertical you are getting the guarantee of seeds that we have tested ourselves. If any of our seeds don't germinate within 21 days we will replace them for free! Seeds are a living thing and sometimes they just don't germinate, so don't worry if a few don't come out right away!

You will use your seedling starter kit to start your seeds.

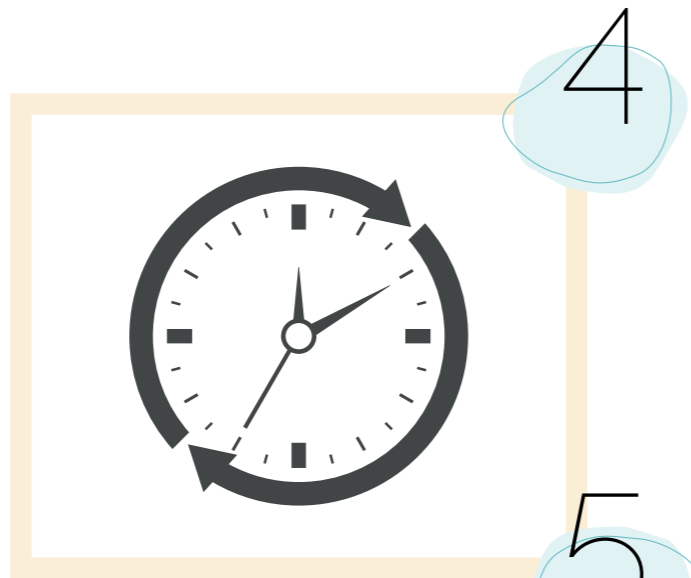


Begin by inserting the seeds into the plug, you want to use all the seeds provided. Aim for at least 2 seeds per plug.

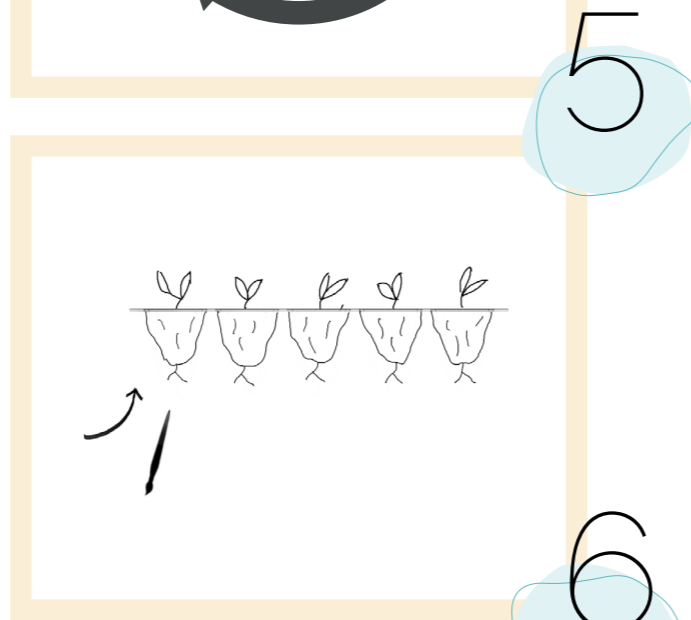
Put the seeded plug into the grow grid in the black plastic tray. Fill the bottom black plastic tray halfway with cold water.

Spray the inside of the lid with warm water and make sure the vent is aligned at the top so the holes are 'open'.

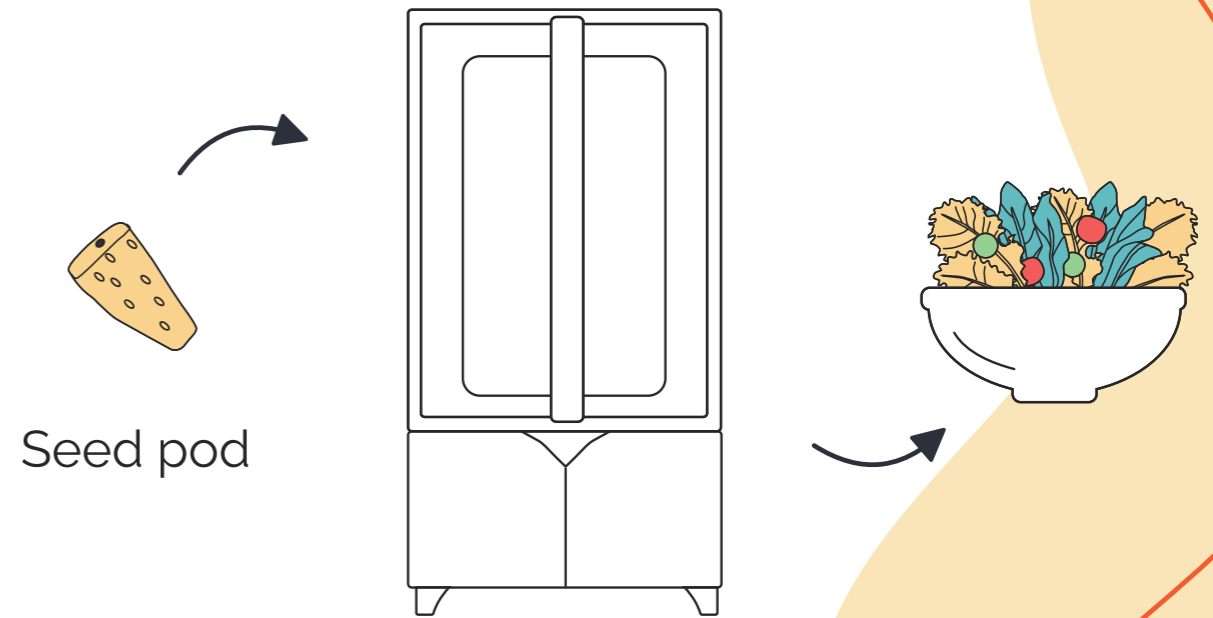
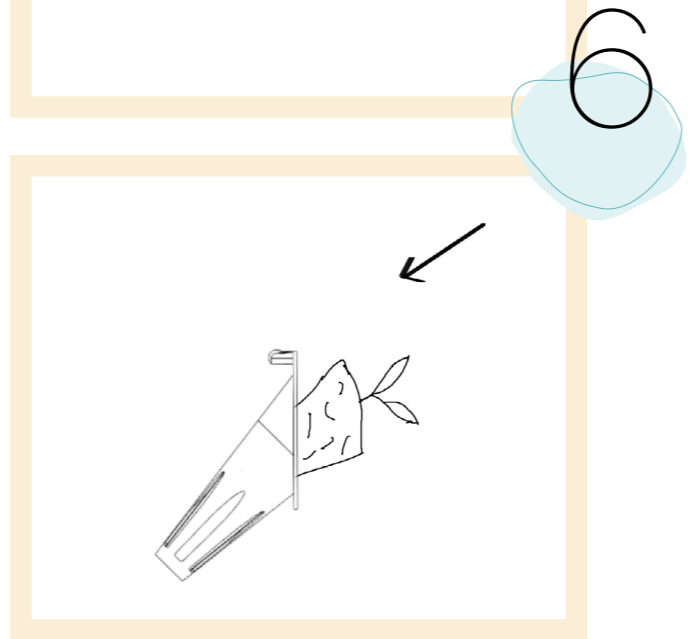
Place the whole kit somewhere with light and warmth. (ie. right beside your AEVA or the windowsill). Wait for your seeds to germinate.



Use a slender object like a pen or paintbrush to gently poke your seedlings out from the bottom.



Transplant into the AEVA pods directly with the plant matter facing the lights.



# PRUNING, STAKES & POLLINATION

## Pruning

Pruning is important to stop plants from overcrowding in your system. It also helps to keep them growing straight and proper. To prune your plants, use clippers, pruners, or your fingers to take off any yellowing or dead leaves (don't worry you will normally get a few of these per plant!). Next, if leaves are growing directly into the light bulbs take those off as they will 'burn'.

## Staking

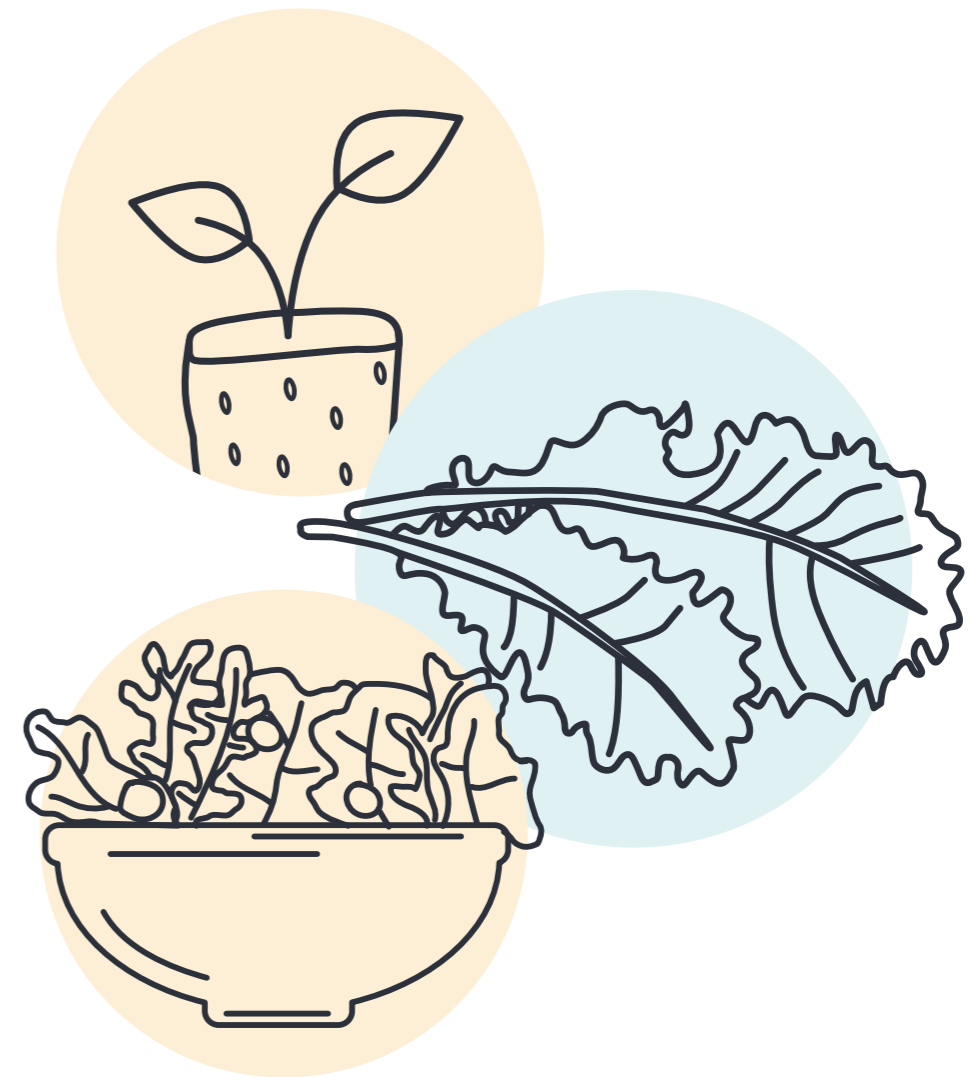
Stakes are used when your plant has grown to about 6" (15 cm) in size. The plant support helps the plants to continue to grow in an upright position and makes sure no water can come out the front face of the AEVA. To install the plant stake, slide the stake in between the peat moss plug and the black pod. Then loosely tie the plant to the support..



# Pollination

Only flowering plants require pollination. Pollination is how fruits and vegetables are produced from flowers. When you are gardening indoors there are no natural pollinators like bees to move pollen, so you have to improvise! The two common plants that are grown in the AEVA requiring pollination are tomatoes and strawberries. To pollinate these you have three options: by hand, vibration, or wind.

To pollinate by hand use a small brush (toothbrush, paintbrush, makeup brush, etc) to move the pollen within the flower from the male to female portion by brushing the middle of the flower then the sides. Vibration pollination works shaking the pod gently so that the pollen comes loose. Wind pollination can be done by setting up a small fan nearby to generate air movement causing the pollen to move around. This should be done once a day for 3 days and then leaving a day of rest before repeating. See below for all the parts of a flower!



# Nutrients

Using nutrients is an easy process. If you are starting from a brand new tank of water you put in a little more, if you are just topping up you put in a little less. This is because some nutrients will always remain in the water from last time.

When transplanting your seedlings into your AEVA you will use Aqua Vega nutrients. Add 20ml of A and 20ml of B to the 12L reservoir to start and then after that add 10ml of A and 10ml of B every two weeks.

If you are growing flowering plants such as tomatoes or strawberries: Once the flowers start to bloom, you will start with a fresh reservoir and add 30ml of Flores A and 30ml of Flores B. You will then add 10ml of Flores A and 10ml of Flores B every two weeks.



# Common Nutrient Questions

## **Q: What are the “nutrients”?**

A: Nutrients are the basic building blocks of plant life made up of phosphorus, potassium, and nitrogen. These are the same elements you find in garden soil.

## **Q: How are they made?**

A: Our nutrients are a mix of salts placed into water. They are chosen together to provide the best base for plant growth. Each salt is made differently.

## **Q: Are these natural?**

A: Yes, they are quite literally salt of the earth!

## **Q: Can I store both A & B in one bottle?**

A: No you cannot. If you try they will start to bond to each other in the bottles.

## **Q: How should I store the nutrients?**

A: Store your bottles in a dark area at room-temperature (in the AEVA's cabinet works).

## **Q: What is the recommended pH for plants?**

A: The recommended pH is 5.5 - 6.5.

## **Q: I am monitoring TDS what should I aim for?**

A: Lettuce & arugula (500-750ppm/1.0-1.5 mS/cm)  
Kale and brassicas (600-1000ppm/ 1.2 -2.0 mS/cm)  
Herbs (600-800ppm/ 1.2 - 1.8 mS/cm)  
Flowering (600-1000ppm/ 1.2 - 2.0 mS/cm).

# HARVESTING

## Common Leafy Greens & Herbs

When harvesting there are three rules to follow:

- 1 Taking more than 1/3 of the plant at once can shock and kill it so be careful.
- 2 If the main stem is going 'woody' then the plant is bolting and it is time for a new one.
- 3 If your plant is growing flowers and the stem is becoming solid wood it is time to replace it.

See below for our guide on when to harvest some popular leafy greens and herbs.

### Arugula

Ready to harvest 3-4 weeks after germination. You can harvest continually by taking only a few leaves at once or take the whole plant at once.

### Lettuce

Ready for harvest 3-4 weeks after germination. You can harvest continually by taking only a few leaves from the outside or you can take the whole plant at once.

### Kale

Harvested by leaf starting with the leaves closer to the base of the plant.

## Spinach

Harvested as baby spinach for a softer flavour in which case you can harvest by leaf. However, if you want mature spinach, take the whole head at once.

## Basil

Harvested many times throughout its life and responds well to being trimmed. Cut basil from the top canopy of the plant to encourage fuller growth.

## Mint

Tends to get fresher the more it is harvested. Continually harvest once it is 3 or more inches long. Trim it from the base making sure to leave it about 2 inches of growth.

## Cilantro

(also known as coriander) Ready to harvest when it is 6 inches tall. To harvest just pick off what you need or cut off a bunch at once. Enjoy the fresh tacos!

## Rosemary

Slightly slower growing herb that is ready around 6 weeks of growth. Each time you harvest you can take about 2 inches off each branch.

## Lemongrass

Ready for first harvest when the stems are about half an inch thick. To harvest snip entire stalks closest to the main stem first as they have the best flavour.

## Parsley

Takes around 10 weeks to fully develop. Should be regularly pruned as it grows. To harvest cut the stalks from outside in and as close to the base of the plant.

## Dill

Takes around 8 weeks to fully develop. Should be regularly pruned as it grows. To harvest cut the stalks from the outside in and as close to the base of the plant.

# Harvesting Strawberries & Tomatoes

## Cherry Tomatoes

Cherry tomato plants take a bit more care and patience throughout their life cycle. These plants generally take 6- 8 weeks before producing ripe tomatoes.

Throughout the growing process you will want to regularly prune the plant cutting back some of the excess foliage. This will encourage the plant to produce tomatoes.

When pruning you should look for suckers that should be taken off (see diagram) these grow out of the elbow of the main stem and its branches. The flowers you see will eventually become tomatoes so make sure to take good care of them! When flowers emerge switch your light cycle to 12 hrs on/ 12hrs off.

Make sure to regularly pollinate the flowers and soon you will see green tomatoes. You will know they are ready to harvest when they turn to a bright red colour.

## Strawberries

Strawberries can sometimes be a test of your patience. These plants can take several months (or even longer) before they begin to produce fruit.

Fortunately, once established strawberries can continue to produce fruit for a very long time!

With strawberries as soon as you see flowers ensure that you are regularly pollinating them and that you are using the Flores nutrient blend and you change your light schedule to 12hrs on/ 12 hrs off.







# TROUBLESHOOTING

## Troubleshooting – Hardware

Despite our best efforts, sometimes things can still go wrong with your unit. Don't fret. Here are some frequently used troubleshooting steps that will help you get your unit back to running in no time.

### There is no water being delivered to the plants

- 1 Is there water in the reservoir above the minimum line?
- 2 Is the pump running?
- 3 Is the pump plug into the extension cord?
- 4 Are the quick connects cables for the black box and the pump properly connected to each other?
- 5 Check there is power to that outlet in your home.
- 6 Try turning the system off for 5 minutes and then turning it back on.
- 7 Check that the supply line is connected to the pump.

## Water is leaking out the front face

- 1 If the plant is drooping put in a plant stake.
- 2 Push the plug further down into the pod.

## Water is leaking from an inside pipe

- 1 Check the supply line is securely in the tee.
- 2 Check that the reservoir is directly underneath the black drain pipe.

## Only one light is turning on

- 1 Run through all steps as if both lights aren't turning on.
- 2 Switch the bulbs to see if the bulb is burnt out.
- 3 Switch the cords to check that the cords are not damaged.

## Light is flickering

- 1 Check that the wires at the bottom of the light are firmly inserted.
- 2 Try rotating the bulb more towards centre.

## Lights are not turning on

- 1 Are the light bulbs in their socket and turned towards the towers?
- 2 Are the cords at the bottom of the lights fully inserted?
- 3 Are they manually turned off with the rolling clicker that is halfway up the light cord inside the cabinet?
- 4 Are the lights plugged into the timer?
- 5 Is the timer plugged into the power bar?
- 6 Are the pins in the timer in the correct position? Try switching to 'outlet on' mode.
- 7 Is the power bar turned on? There is a switch on it.
- 8 Is the power bar and GFCI plugged into the wall?
- 9 Try pressing the reset button on the GFCI and checking the power bar again
- 10 Try plugging the power bar directly into the wall. If it turns on only without the GFCI the GFCI is detecting water has spilled onto your electronics somehow.
- 11 Check there is power to that outlet in your home.

# Troubleshooting – Pests

Pests, though rare, can happen in indoor gardening. These are easily solved with some common household items.



## Aphids (white & green peach)

These aphids eat leaves and suck sap from the stem. They are visible throughout their life cycle. They can be found laying their eggs on wet roots or other plant material. They are usually found on the underside

of leaves or stems. In nature they are controlled by ladybugs or aphidoletes. In your home you can remove them with a natural dish soap and warm water. Spray the affected areas and let sit for 15 mins then wipe off the plant. Alternatively, you can spray with an insecticide.

## Fruit Flies & Fungus Gnats

These flies like to lay their eggs in dark, wet conditions. They are only visible in the adult stage of their lives when they are flying around plants. They like to eat dying leaves to be sure to prune your plants to avoid them. They are best controlled with

a nematode spray which is prepared by soaking a nematode sponge in warm water and then spraying directly on and around the plants. Alternatively, an insecticide can be used or yellow sticky traps can be placed to catch them. To avoid more of them make sure to sterilize and wipe down the face of the unit.



## Spider Mites

Spider mites cause leaves to look yellow or bronze in colour. These are typically controlled in nature by other mites. Spider mites are commonly found in dusty conditions, keeping humid clean

air helps prevent them. To control spider mites use a natural dish soap and let sit on the leaves for 15 minutes before wiping them off. Alternatively, you can spray with an insecticide.

## Algae and Mold control

To avoid algae or mold wipe down all front faces of the AEVA and around the pods to limit algae growth. Algae likes to grow in cold wet conditions and in warm water.

# Troubleshooting – Plants

Are your plants growing slower than expected? There could be one or more issues affecting this. First make sure your expectations are reasonable and in line with what plants are capable of (our system is amazing but not a miracle worker).

Here's a list of the most common issues we find

## 1 Nutrients

Having too high a concentration of nutrients in your reservoir can cause tip burn on your plants. This is exhibited by browning or yellowing of the leaves. It could also cause wilting or weakening of the plant. If a large quantity of nutrients were accidentally added to your reservoir it is recommended that you empty your reservoir and add fresh nutrients.

Nutrient deficiencies can be indicated by poor plant health. Indicators of these could be plant wilting, yellowing of leaves, browning of leaves, etc. Please refer to the nutrient section for correct dosing.

## 2 Temperature

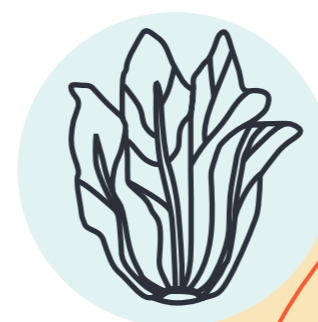
If your plants are exposed to extremely hot or cold air (under heating vent or next to a door in the winter) this could be stunting plant growth.

## 3 Air Flow

If your plants are not getting any air flow this can also stunt plant growth, ensure there is adequate air flow around your plants.

## 4 PH Levels

If you are running your AEVA on well water or otherwise irregular water test the pH level of the water source. A pH outside of the normal range could negatively affect your plant growth. Heavy metals in the water especially can stunt growth.



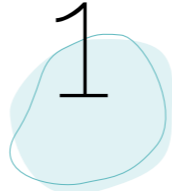
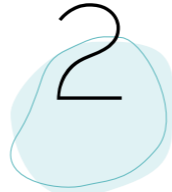



# MAINTENANCE

## Why do I need to maintain my unit?

Maintaining your AEVA is important for the health of your plants and maintaining the good looks of your unit. If you do not follow the regular maintenance protocol, there is an increased risk of slower plant growth or product malfunction.

## Weekly Maintenance

-  Pull off any browning or dying leaves, these happen naturally in normal plant growth and pulling them off helps your plant grow.
-  Harvest consistently, eat what you grow and enjoy a bountiful harvest! Letting your plants get too big slows their growth and can cause complications by blocking out light from other plants or taking too much water.
-  Check that all your plants are fully pushed into their pods and have not shifted or been pulled forward while harvesting. If a plant or pod has been pulled forward it may cause water to run off the plant and down the front face of the unit.



4

Any plants that have grown past 6" in length should be given a support stake that is inserted underneath your plants, especially tomatoes. Any plants that start to droop pose a risk of causing water to drop down the front face.

5

Check your water levels and top up as needed. Add your nutrients every 2 weeks making sure to add 20 ml of Aqua Vega A and 20 ml of Aqua Vega B to your water reservoir.

6

Wipe off any debris, splashed water, or nutrient runoff weekly to maintain the visual appeal of your AEVA unit.

## Monthly Maintenance

1

Wipe off any accumulation of debris or salt buildup from the inside of the reservoir, if there is any debris in the filter at the bottom of your reservoir, clean that as well.

2

Check your bottom pods to make sure no roots are growing into the drain pipe. If there are any roots in there simply pull them out with your hands gently breaking them off from their plants. If the roots coming out of the bottom pod are more than 3" long cut off any excess roots and compost them.

# THANK YOU!

FOR VIDEO DEMONSTRATION, SCAN BELOW

