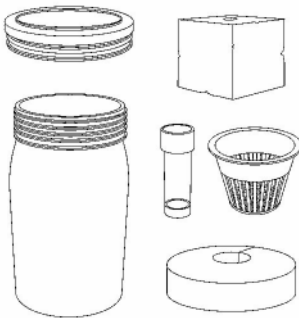


1



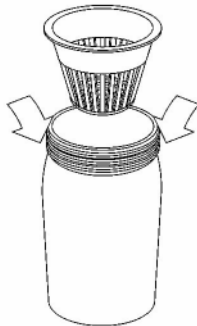
Open and empty the Jar of it's contents.

2



Pour the nutrient concentrate vial into the jar

3



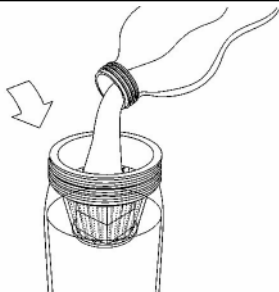
Insert the net cup into the jars mouth.

4



Insert the rockwool cube into the net cup so that the hole is pointing up.

5



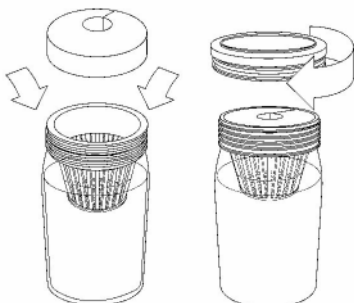
Fill the jar by pouring water over the rockwool cube until the bottom third of the rockwool cube is submerged. This should be about the first horizontal band on the net cup.

6



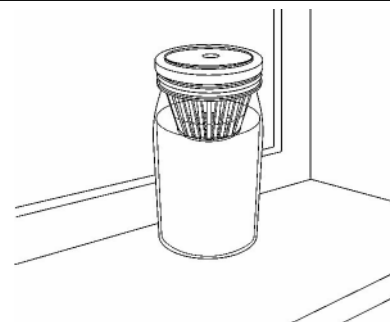
Place a seed of your choice, not supplied in kit, into the hole in the center of the top of the rockwool cube.

7



Insert the neoprene cover into the cup such that light can reach the seed in the rockwool cube.

8



Screw the metal band on to the jar and then place in a location that receives sunlight.

What types of plants will work with this planter?

This planter is designed to grow small leafy plants such as various varieties of lettuce, small herbs and spice plants.

The container is too small for larger fruiting plants like tomatoes, cucumbers, etc.

The supplied nutrient solution is not tuned to the needs of flowers although they still should grow.

Potential plants include leafy, romaine, and various lettuces, cilantro, dill, basil, green onion, kai choy, pak choi, and watercress.

Can I extend the plants life by adding more water?

Water alone won't do it but you can extend the plants life by adding more nutrient water. (See, *How do I reuse the planter*) Once the water level is at $\frac{1}{4}$ of the jar or less you can add more nutrient water until the jar is half full. If you put more than that in the planter you risk drowning the plant. The plant needs to have a portion of the root that is above the water.

Multiple plants have started growing?

If you planted more than one seed it is possible that you will have more than one plant start to grow out of the planter. Since the planter can only support one plant properly you will need to choose the plant you wish to keep and prune the other ones. You should cut them because if you try and pull them out you may damage the plant you wish to keep.

How do I reuse the planter?

The jar, net cup, and foam cover can be washed and reused.

Replacement rockwool 1.5 inch cubes are available through online retailers such as Amazon. You can also use a 50/50 blend of Perlite and Vermiculite instead of the rockwool.

For the nutrient solution we suggest Dyna-Gro Grow 7-9-5 liquid plant food which is designed to contain everything a plant needs in a one part liquid. However, any hydroponic nutrient solution system should work. Just prepare it according to the directions on the package for a recirculating hydroponic system and fill the planter.

What is Hydroponics?

Hydroponics is the science of growing plants without the use of dirt. Everything that the plant needs to grow and thrive is provided to it through its roots by being dissolved in a nutrient water solution.

The seed is grown in a non-organic medium so that the plant can establish some support. This is usually done using rockwool which is molten rock spun in to strands like cotton candy which is then treated to be PH neutral. Other popular mediums are Perlite, Vermiculite, and expanded clay balls. All of these have the ability to hold and wick water while also providing air gaps and support for the roots to grow.

A Recirculating hydroponic system has a reserve solution tank that is also aerated. This solution is then pumped past the plants roots and back into the solution tank. Careful attention to the solution has to be made to ensure it remains in balance so that it maintains the proper mix of nutrients, PH, and dissolved oxygen.

A Feed to Waste system periodically pumps a freshly mixed solution into the support medium and roots of the plants after which it drains away and is not reused.

An Aeroponics system holds the plant so that its roots are hanging in the air. The roots are then continuously or periodically sprayed with the nutrient solution to feed the plant and keep the roots from drying out.

What is the Kratky method?

The Kratky method is a non-circulating hydroponic method developed by B. A. Kratky at the University of Hawaii. It

was originally developed for industrial hydroponic farming but is scaleable all the way down to a simple countertop planter.

The Kratky method is a unique method of hydroponics in that it does not require any pumps or the aeration of the nutrient solution.

The foam cover reduces the amount of light that will directly reach the nutrient solution to help inhibit the growth of organisms that would consume the nutrients. This is also why the planter is made of amber glass which still allows you to monitor the nutrient solution level and root growth.

The rockwool and seed is supported by the net cup such that its lower portion is initially immersed in the nutrient solution. This causes the plant to be automatically watered, because the entire growing medium in the net pot becomes moistened by capillary action.

Plant growth then causes the nutrient solution level to decrease, thus creating an expanding moist air space which is maintained, because the planter's foam cover prevents the roots from drying out.

At some point, direct capillary wetting of the substrate is no longer possible, but the expanding root system is capable of absorbing nutrient solution from the planter. The roots occupying the moist air space above the solution are oxygen roots whose main function is aeration; these roots experience vigorous lateral and branching growth.

Roots extending into the nutrient solution are considered to be water and nutrient roots that have limited elongation capabilities, because the oxygen content of the nutrient solution becomes progressively lower with depth.

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