

# Hydroponics: *Kratky System*



Here is a step by step to guide you through making a simple ***Kratky*** growing system. Using items readily available online or at the garden centre.



## Key words

*Growing Media*  
*Kratky*  
*Nutrient Solution*  
*Reservoir*  
*Rockwool*  
*Root System*  
*Wick*








Caution! Make sure a trained adult is helping to build this as power tools can be dangerous.



## Learning

KS2: Plant lifecycle  
 KS3: Photosynthesis  
 Mathematics: ratio / nutrients  
 Design & Technology: Manufacture, Iterative Design Process (improve and develop)

## Equipment List

Black tub	
Basket	
Drill	
Drill bit (hole cutter) to fit basket	
Growing medium (we are using clay pebbles)	
Plant	
Nutrient solution	

# Hydroponics: *DIY Kratky System*



## **Step 1**

**Choose your plants.** We had a couple of aubergines that needed rehoming so decided to use these for our Kratky method experiment

## **Step 2**

**Make a hole in the top of a container.**

We went with a 25-litre black lidded bucket. We made the appropriately sized hole in the lid of the bucket, that would allow a snug fit for a 3-inch net basket.



## **Step 3**

**Fill container with nutrient solution.**

We then filled the bucket up with water, mixed with nutrient fertiliser to about 3 quarters of the way full. We then placed the lid onto the bucket and continued to fill until the solution was just above the base of the net basket.



## **Step 4**

**Wash the plants.**

It was now time to wash off as much of the growing media from the roots of the plants. This will allow the roots to pass freely through the net basket and prevent any loose material from making its way into the nutrient solution.



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## Step 5

### Securing the plant with

**Rockwool.** We placed the plant inside the net basket and secured it in with a few pieces of Rockwool. The Rockwool will wick up the solution, keeping the roots watered until they make their way deeper into the nutrient solution.

## Step 6

### Covering up the top of the roots.

We covered the tops of the roots with some clay pebbles. This will help protect the roots and prevent any light from making it through to the nutrient solution. If too much light makes it to the solution, algae will start to form. Therefore, it's advisable to use a dark coloured container for your grow pot, as this will help reduce light penetration.

## Step 7

**Place in a sunny spot.** Now that the system is complete its time to give it some light. We've added ours to one of our self-watering systems, where it can get lots of energy from the grow lights. Over time the roots will grow longer and deeper into the nutrient solution. As the solution level drops, it will create an air pocket. The plant will send out new roots into this air pocket that are designed to take in oxygen. This is how the plant can take in both oxygen and water even though a proportion of its roots are always fully submerged.

# Hydroponics: *DIY Kratky System Picture Sort*



Put the steps in order, then add the right description!



Step 1. Choose your plant

- Choose your plant
- Place in a sunny spot
- Wash the plants
- Washed plant
- Secure the plant with rockwool
- Cover up the roots: Pebbles
- Fill container with nutrient solution
- Cut a hole in the container



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## Key Words:

Compost	It is commonly prepared by decomposing plant, food waste, recycling organic materials and manure. Used as fertiliser and to improve soil health.
Cotyledons	Cotyledons are the first leaves produced by plants
Germinate	Germination refers to the process by which an organism grows from a seed or a spore.
Growing Media	Growing media, also known as a growing medium, is the material in which plants grow. This could be soil, compost, coco coir or clay pebbles for example.
Kratky	Kratky is the name of the method in the step by step guide, this method was discovered by B.A. Kratky from the University of Hawaii.
Nutrient Solution	The hydroponic nutrient solution is defined as the fluid that provides mineral nutrient mix for plant growth
Root System	The roots are the long stringy part that travel underground, they serve three primary functions: they anchor the plant, absorb water and minerals for use by the plant, and store food reserves.
Wicking	Water containing nutrients is drawn up through the wicking strong, via a process called capillary action or wicking.