



Hydroponics For Beginners (Made Easy!)

by **ASCAS** on October 29, 2013

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Author:ASCAS ASCAS.com

Angelo Casimiro: I'm an enthusiastic hobbyist like you. I started my hobby at a young age of 4, and posted ibles at 10. Electronics and computer programming is my specialty. I'M PROUD TO BE FILIPINO!

Intro: Hydroponics For Beginners (Made Easy!)

Planning to make a small scale hydroponic setup? Today's your lucky day! I'm going to show you how to make one in less than 15 minutes, out of household materials! Our tiny "Hydroponic System" kinda cost us \$5-7. Since our goal is to make this eco-friendly we hooked it to my 3W solar panel + powerbank, similar to my "Portable Solar Charger" guide. This guide is great for school projects such as: science fair or investigatory projects

Our Investigatory Project (GRADE 8 - IP):

Originally this project was documented for our "Investigatory Project" last year, about: "The Feasibility Of Growing Crops In A Hydroponic System" Our . I.P. was quite a success, caught some attention and got the highest grade in class.

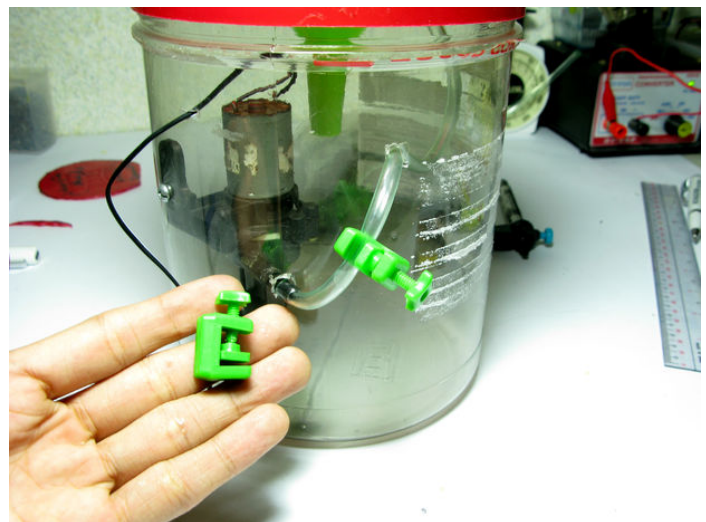
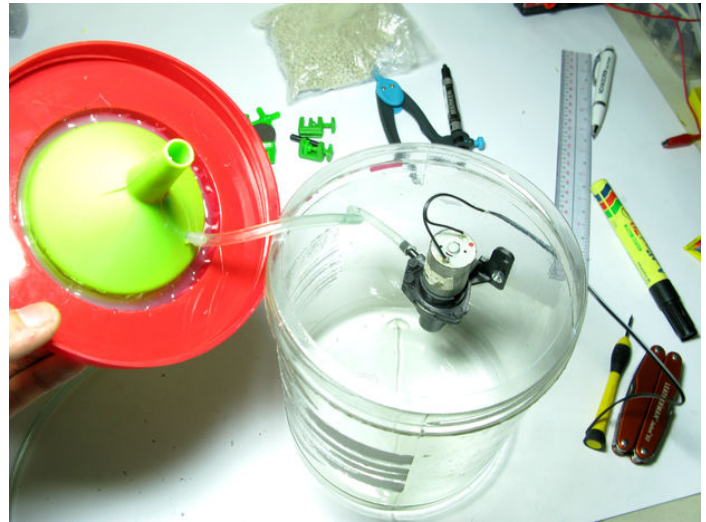
So the problem goes like this: Today's rapid growth of human population causes the lack of available space for crop agriculture. The traditional method for planting crops requires labor intensive methods such as: tilling lands, watering crops on a daily basis, using unhealthy pesticides, fumigating the crops. Scientists say that "vertical farming" is the future of plant agriculture, although soil is very hard to transport, especially in tall building. Hydroponics is done to have better control of the nutrients being absorbed by the plants and makes planting on rooftops more convenient and easier

Recommended Seeds/ Plants:

- Tomato Seeds/ Plant
- Mung Beans/ Plant (We used this one)
- Chili Pepper
- Bell Pepper

If you like my project, please VOTE :D Cheers!

More Projects To Come This 2013! Coming next water powered flashlight!



Step 1: Gathering Your Tools And Materials

Parts & Materials: (Some links are just alternative, I bought mine for \$5)

- Recycled Container (Free)
- Controlled Fertilizer (\$1.00)
- DC Water Pump (\$4.00)
- A Cheap Mini Funnel (\$0.10)
- Aquarium Tubing (\$0.40)
- Water Flow Valve (\$0.20)
- T-Shaped Splitter (\$0.10)
- Super Glue/ Epoxy (\$1.00)

Recommended Pump Kit: DIY Water Pump Motor Water Pipe Power Supply Set (\$12.90)

Tools & Equipment:

- Leatherman Multitool (Gift From: Instructables)
- Rotary Tool (Dremel/ Black & Decker)
- Permanent Marker
- Soldering Iron
- Hot Glue Gun
- 12inch Ruler





Step 2: Installing The Water Distribution System In Your Funnel

Our hydroponic setup uses a simple water drip system. Water needs to reach the plant, also needs to get distributed evenly.

- 1st.) Drill a hole on your funnels side for the T-splitter.
- 2nd.) Measure the inner circumference of your funnel and cut a strip of tube [Formula: $(2)(i\epsilon)(r)$]
- 3rd.) Slit some hole on your tube using a knife, be sure to slit it on 5 even sides. Use a ruler!
- 4th.) Connect your tube on the T-shaped splitter
- 5th.) Apply a few drops of super glue to mount your assembled drip system (tube) on your funnel





Step 3: Glue The Assembled Funnel To The Cover

This is a three step procedure, be careful in handling knives and hot-glu.

1st.) Trace your funnel on top of your container's cover

2nd.) Use you leatherman's knife to cut a hole cleanly

3rd.) It's now time to warm up your gluegun and mount the funnel to your container's cover. Be sure to seal in the gaps!



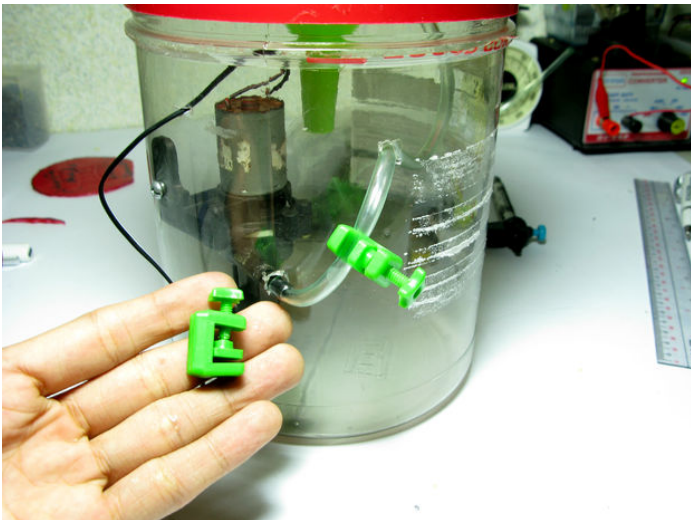


Step 4: Installing Your Water Pump

There are some factors to consider in buying water pumps, the AC (outlet type) consumes a lot electricity and isn't compatible with solar panels, the DC (battery type) can be easily hooked to a solar panel w/battery, providing free electricity 24/7.

If you plan to hook it up to a solar panel, I recommend reading: [DIY Portable USB Solar Charger \(\\$20\)](#)

Okay lets get started! What I have here is a non-submersible water pump, which I found from my inventory. I had to drill a hole on the container in order to add a pinch valve (water flow valve). The pump is slightly elevated since it is not water proof.



Step 5: Finalizing The Setup

I saw this pack of fertilizer lying around my our garden, it was my dad's. It's a typical complete & controlled fertilizer for general purpose. For my setup, I just dropped 2 table spoons of fertilizer. If your concerned for your plant's nutrition, there are some fertilizers designed for hydroponic setups found in Amazon.com

Use smooth pebbles to hold your plant's roots, make sure they are tucked in firmly.







Step 6: Soil Planting Vs. Hydroponics

Here are our the results of our experimentation for our investigatory project in school. You can find a significant difference between the comparison of the soil planted plant and the hydroponic plant.

Bottom Line: Plants planted on a hydroponic medium, grows faster = Hydroponic Wins!

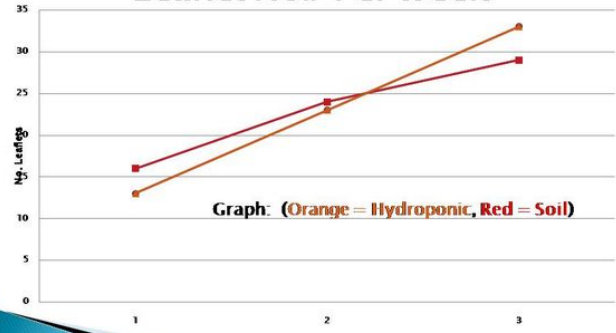
Our I.P. Presentation & PDF Guide Is downloadable below! Cheers & Goodluck!

WEEK#	WEEK#1	WEEK#2	WEEK#3
Soil Potted Plant (Kalachuchi Plumeria) Plant A	 Height = 149mm Leaves = 16	 Height = 154mm Leaves = 24	 Height = 169mm Leaves = 29
Hydroponic Pot Plant (Kalachuchi Plumeria) Plant B	 Height = 148mm Leaves = 13	 Height = 163mm Leaves = 23	 Height = 185mm Leaves = 33

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Data Analysis (GRAPHING)

Leaflet No# Per Week



Related Instructables



My Indoor DWC Hydroponics System by LancePenney



Home Made Windowsill Hydroponic Herb Garden (video) by SleestaksRule



Single Dutch Bucket Hydroponic System - Easy DIY - Patio - Balcony - Winter Gardening (video) by mediamaker2000



Aeroponic System by NaTeB1



Make a super-easy hydroponics system! by Rotten194



Simple Hydroponics made out of simple household materials by project_builder