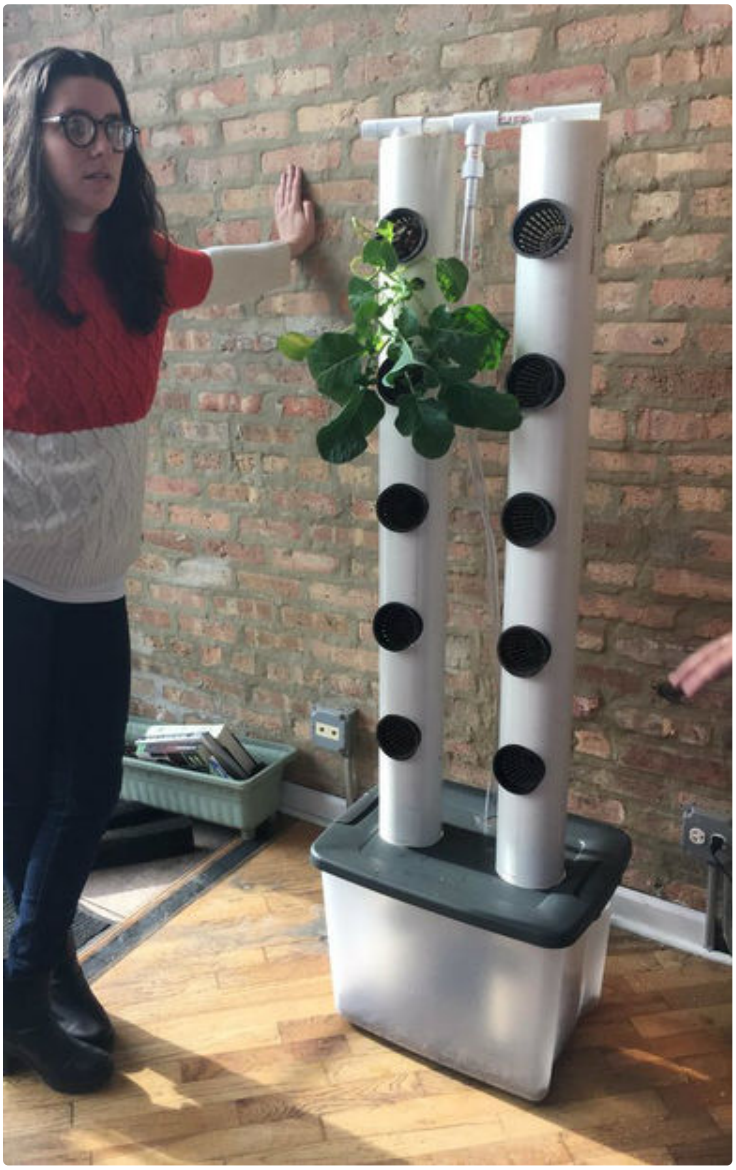
# Aquaponics - Minimal Apartment DIY

by Aqualogue

Parts list:

- 4" PVC pipes, 5' tall (2 count)
- 56 Qt. Storage Box Clear Plastic
- 300 GPH Pump
- 6' of food safe 3/4" Black Tubing
- 1/2-Inch PVC Slip-fit Female Adapter Pipe Fitting - Barb
- 1/2-Inch PVC Male Thread Adapter Pipe Fitting - Barb
- 1/2-Inch PVC T Shape (3 count)1/2-Inch End Caps
- Aquarium rocks
- Aquarium heater (not pictured)
- 2 Ball valves (optional; not pictured)

All of these materials can be found at local hardware stores, pet stores, or purchased online for under $60.



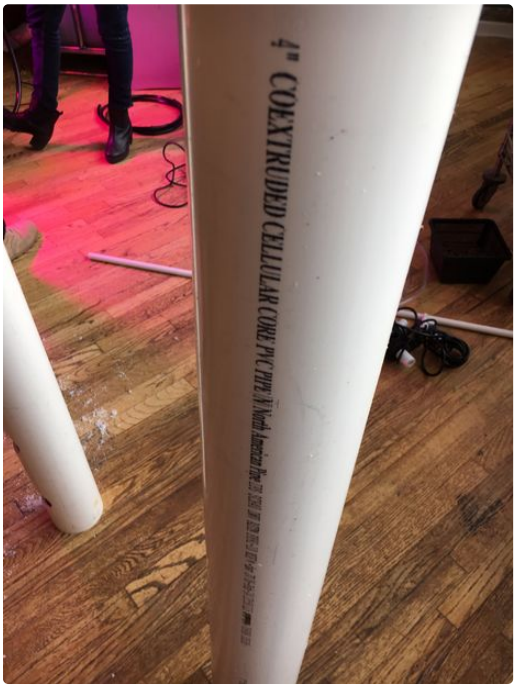
## Step 1: Drill the holes

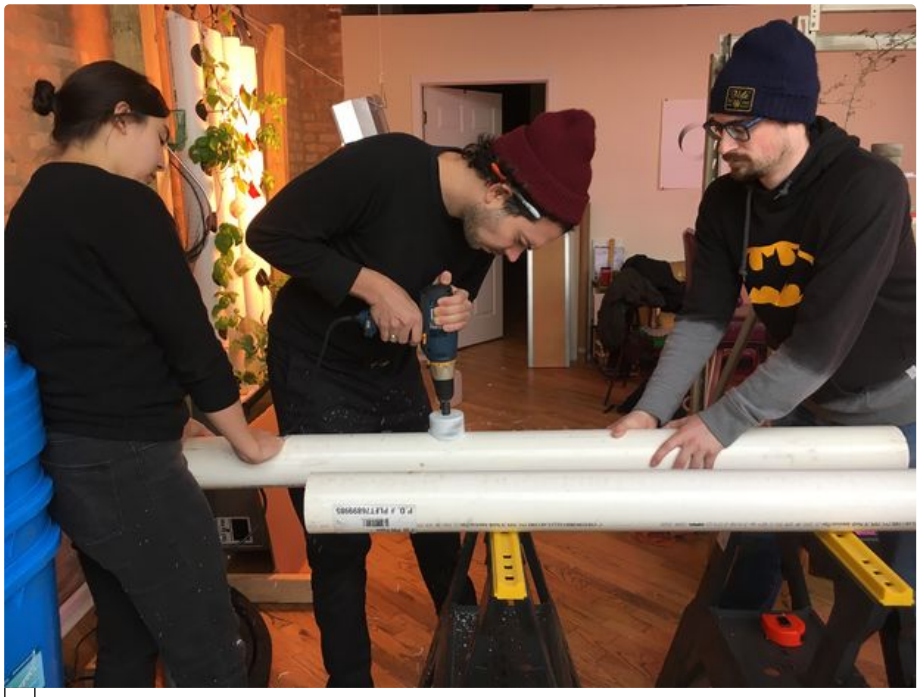
Using a drill and hole saw bit. We used a **3 inch hole saw**. The reason for the 3 inch size is to later accommodate reusable materials for media holders like plastic water bottles.

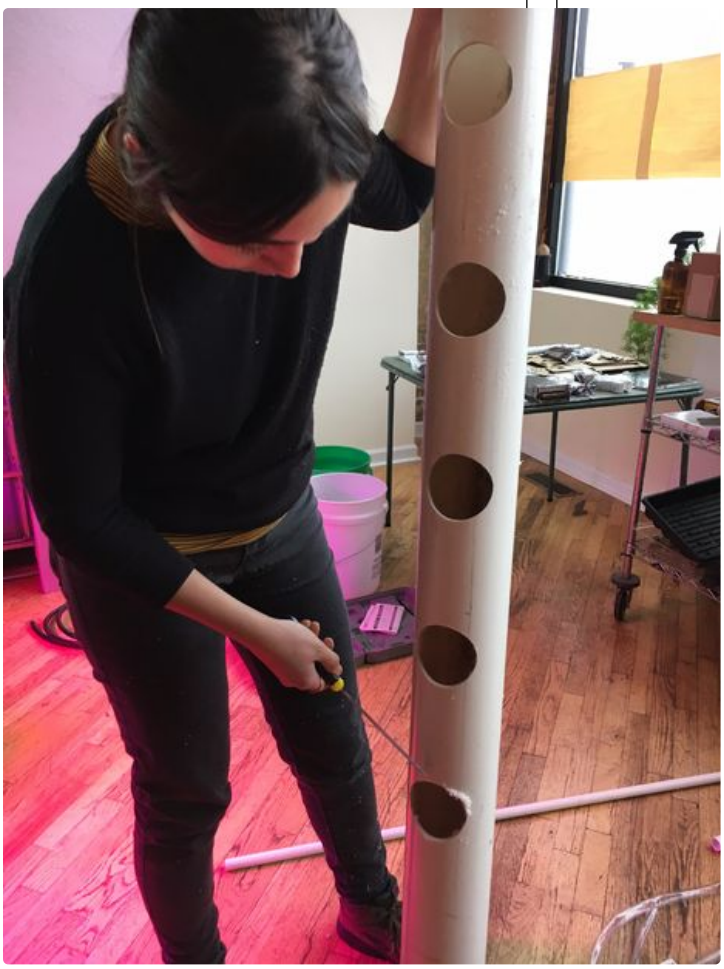
1. measure the height of your fish tank/plastic container. Then from that mark on your pipe, drill the holes **8" apart**, measuring from the center point of each hole.

*You'll want to drill a hole below the mark too so that the fish can swim freely through the pipe in the fish tank.

2. use a file or sandpaper to smooth off any plastic burrs.


4" COEXTRUDED CELLULAR CORE PVC PIPE





## Step 2: Cut holes for pipes

1. After tracing the pipe ends on the lid, use a jig saw to cut the holes for the pipes.
2. Cut inside the lines by 1mm for a snug fit.

## Step 3: Add the pump and media

1. Add your pump to the container/fish tank and connect the 1/2" threaded barb to the pump and black tubing.

2. Add your media (aquarium pebbles, etc). This should amount to around **10% of the total volume** of your system to allow for enough space for nitrifying bacteria to live. Nitrifying bacteria are the magic that makes this system work.

3. Some pumps come with an attached filter. If it does not, you'll need to rig up a **filter** so that your pump doesn't clog. Here we used a 2 inch net pot, sponge, and a zip tie.

## Step 4: Plumbing the top irrigators

1. Measure the distance between the centers of your pipes. Using a hacksaw or pipe cutter, cut two pieces of 1/2 inch PVC pipe to go between the PVC T-Shape drippers and connected everything.

2. Cap the two ends with your PVC end caps.

*If you find you need more water flow control, add 2 inexpensive ball valves to the drip outlets.

## Step 5: Add water and fish and plants!

1. Go ahead and **add the water**. Make sure to use dechlorination product or let the water sit 24+ hours before adding the fish to allow the chlorine to dissipate.

2. **Add** 2 or 3 goldfish.

3. **Reuse** plastic bottles with holes cut in them to hold your seedlings in place. Make sure to put enough holes in so that the drip stream keeps everything wet and make a bottom hole for the roots to grow through.

4. **Add your plants!**


PIPE

That's a really neat setup! Great space saver :)

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Thanks! The second objective after cost reduction was space reduction. This design can fit pretty much *any* indoor space.

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use a solar pump and it'd be an almost no input system :D lol

Love the idea :D will have to make for my garden

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Agreed. Though the cost would increase quite a bit and the general goal for this project was to get the cost down to bare minimum. Let me know if you end up building on of these - would love to see it!