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Appendix A
Self Watering Container Steps

Step 1: Prepare 2 Liter Bottle

Draw a Line

Rinse out the bottle to remove any residue of whatever drink was in there before it was empty. Take your 2 liter bottle and draw a line around it right where the curve ends and the bottle transitions to a straight line. It's important to draw the line **below** the curved area, so you have

enough space to grow your plant!

Cut The Bottle

Next, cut across the line, making sure to cut as straight as possible. Then flip the top over. Pretty simple, right? Now you've got the basic structure of the system built.
The top area is where your growing media and seed will go, and the bottom section houses the water and nutrient mixture. A wick will be fed through the hole…but before we get to that, we have to prepare the water…

Step 2: Prepare The Water

pH Your Tap Water_____

Note: pHing your water is optional, but it's highly recommended not only for helping your kid's plant grow better, but also for teaching him/her some really cool principles about chemistry and WHY a plant needs water with a lower pH than what we typically drink.

Now that we have built our simple 2 Liter Garden, we need to pH the water and add nutrients. Most tap water is in the 7.0-8.0 range. The plants you will be growing need water with a pH in the 6.0-6.5 range, so you will need to use some pH down. The picture to the left shows the forest green color of average tap water in the 7.0-8.0 range.
pH down is highly corrosive, so be sure not to get it on any part of your body. You don't need much to adjust the water – try a drop to start. Mix it into the water thoroughly and then test again. When the color matches the 6.0-6.5 range like the picture on the right, you're ready to mix the nutrients.

It can take a while to get the color just right – try not to get frustrated. This is one of the most important steps in making sure that your plants get all of the nutrients that they require for vigorous growth. If you don't correctly adjust pH, you will prevent your plants' roots from absorbing certain nutrients.
Educational Resources
Click here for more information about how pH interacts with nutrient uptake.

Add Nutrients

Now we need to remember how much water we added to the reservoir. Take a look at the nutrient mixing chart on the back of your bottle of General Hydroponics FloraNova Grow. This will give you the exact amount to mix into your system. If you're starting from seed or cuttings, use ¼ tsp/gallon and if you're starting from established plants you've bought from a garden store, use 1 tsp/gallon.
Educational Resources

Hydroponic Nutrients Guide – What Plants NEED To Grow

After you prepare your water, pour it into your 2 liter bottle until it reaches the point where the cap would touch, then move on to the next step!

Step 3: Add Wick and Growing Media

Add The Wick

Take your wick and thread it through the cap hold in the 2 liter bottle. Pull it through to around 2/3 of the height of the smaller growing area.

You want it to be high enough so that when your seeds sprout, the roots won't have to travel far to get to the wick area (where your growing media is moist and filled with nutrients.

Prepare Your Growing Media

If you decided to use coconut coir, this step is simple: all you need to do is add some water to your coco coir brick, which will hydrate it and expand it to around 5 times its original size. Drop a few handfuls into your bottle, making sure the wick is in the center of the media.

If you are using another type of media, repeat the process, but don't add extra water!

The cube in the middle is a Rockwool Cube, used to start seeds outside of the system

Step 4: Plant Your Seeds!

Now comes the fun part – planting your seeds. Grab your packet of seeds and pour a small amount out in your hand.
Pick three or four seeds and clump them together on the tip of your finger. Now, you might be thinking:
"Why am I planting 3-4 seeds if I'm only growing one plant?"
It's a good question! The reason we do this is because of **germination rates**. A seed does not have a 100% chance of sprouting…usually it's anywhere from 80-95% for fresh seeds for most common varieties.
We plant 3-4 seeds in one hole to increase the odds that we get *at least one* that sprouts – it'd be a shame to wait 5-7 days only to have your seed not sprout – so avoid that problem altogether by planting a few!
Follow the directions on the seed packet to figure out how deep to plant your seeds – usually it's $1/4^{th}$to $1/8^{th}$ inches below the growing media. Make sure to cover them up with a little coconut coir so they're in a dark environment.

Using a Different Growing Media?
If you're using a larger growing media (pebbles, lava rock, expanded clay pellets), then you'll need a seed starter like a Rapid Rooter or Rockwool Cube to get the seed started. See the materials section for more information.

Finished Product

Congratulations, you're now the proud owner of a really awesome 2 Liter Hydroponic Garden that will produce a head of lettuce, spinach, or some tasty basil within a few weeks! Read on for some important details on taking care of your garden.

Why Is There Aluminum Foil Around The Garden?

If you want to be absolutely sure of the health of your garden, you'll want to encase the 2 Liter Bottle in something opaque – aluminum foil works well.

Why? Plants aren't the only organisms that like water, nutrients, and light – algae does too. If you let too much light hit the nutrient reservoir, you might find that you get some nasty visitors that will make your garden look gross and smell a little weird.

Maintenance

This garden is really easy to take care of. Just follow the guidelines below with your child and you'll have a healthy plant!