



## SIMPLE GARDENING AT HOME

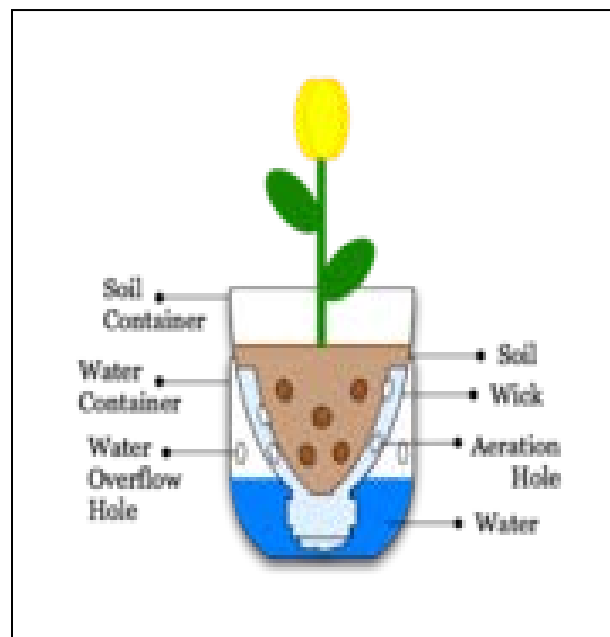
### HYDROPONICS – WICKING SODA BOTTLE SYSTEM

There are many types of hydroponics (growing in water) systems. Advanced systems require pumps, aeration and special grow lights and mediums. One of the simplest uses a wick. We will be creating an herb garden using the wick system.

This system has no moving parts. It works very well with low maintenance plants that require less water and nutrients such as: rosemary, lettuce, and greens.

It works using a “capillary action” which moves water through a tube or other material – think of paper towels absorbing water. This is how plants absorb nutrients and water through their roots as well.

Capillary action occurs because water droplets adhere to each other so when they enter a tube or other material it sticks to the walls and creates a water droplet. The molecules in the water drop are held together creating water tension, this causes it to continue to move up through the material.



**Materials:**

Wick – fibrous rope, rayon rope, yarn, felt, nylon rope strings of fabric or old blankets

1 plastic 2-liter soda bottle, cleaned, with cap (will provide both the grow tray and reservoir)

Growing medium – This will need to absorb water well. The best materials are perlite, vermiculite, or coconut coir. They are readily available at local hardware stores. We will be using coconut coir.

Nutrient solution – We will be using Miracle-Gro

Black spray paint – to darken the plastic bottle

Duct tape

Scissors -sharp

Ruler

Marker

You can use a pump and/or air stone to oxygenate but can grow without.

**Procedure:**

- Cut the bottle 8" from the top
- Cover the cut edges with duct tape
- Spray paint the bottom portion of the bottle with black paint and let dry
- Cut a hole in the cap large enough to thread the wicking material through
- Thread wick through the hole so half is below and half above the hole
- Combine the nutrient solution and the water
- Fill the base of the soda bottle up to 4' below the top
- Invert the top of the bottle, cap side down into the bottom half of the bottle. Be sure the wick rests freely in the nutrient solution
- Make sure the bottle cap is above the water level
- The diagram shows an aeration hole and water overflow hole that you can add as well

**Care:**

- Replace water and nutrients as it gets low
- Flush the growing medium with clean and fresh water every 2 weeks