

# HOW TO GROW FRUITS & VEGETABLES WITH SELF-WATERING CONTAINERS

Using recycled materials to increase your food security while reducing your carbon footprint and costs of living



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# WHO WE ARE

- Program Creator: The Learn & Grow Educational Series was created in 2013 to provide instruction to the public regarding practices in food security and sustainable living, both according to evidence-based practices. Our self-watering container donation program is just one aspect of our community-based public instruction.
  - Your new self-watering container was built and hand-decorated by a Learn & Grow volunteer looking to bring food security and sustainability to their local community.
  - <https://learn-and-grow.org>
  - IG: @learngrowedseries
  - FB: @LearnAndGrowEdSeries
- Bucket Donor: La Carreta
  - 75 S. Rancho Rd., Ste. B, Thousand Oaks, CA 91362
  - (805) 494-4624
  - IG: @lacarreta805to
- Water Conservation Specialists:
  - Superior 1 Service Plumbing
  - <https://s1splumbing.com>



# About This Program

Purpose: To give people immediate access to a means of growing their own food no matter where they live, even if they have no open ground for growing, thereby providing them with hands-on project-based learning (PBL) opportunities to become proficient at growing their own food and decreasing their dependency on the commercialized food supply for survival for the rest of their lives.

- Supporting Science & Public Benefits:
  - Modeling & imitation is an evidence-based learning skill mastered by most people in early childhood, so our instructional content provides instruction that models how to use self-watering containers so that recipients can imitate the instruction in real life to grow their own food.
  - PBL activities provide a multi-modal instructional context that accommodates, if not facilitates, most learning modality preferences, making it more universally accessible to more learners than purely informational sources of how-to guidance; the hands-on aspect of starting out with an existing container makes understanding how it works that much easier, which increases the likelihood of donation recipients copying the method to recycle other buckets and turn them into similar gardening containers later on and expanding their self-watering container gardens, building self-watering container gardens for others, developing collaborative community-based self-watering container gardens with neighbors, etc.
  - Having the ability to take ownership of food sourcing from home if needed makes dark economic times when food costs more than it should at the store less scary.
  - Parents having the ability to teach their children self-watering container gardening as a fun activity equips those children with life-long survival skills that can keep them fed, come what may.
  - Renters and others living transient lifestyles having the ability to take their gardens with them when they move, donate them to others if they have too many containers to take with them, and otherwise rearrange their containers to capture sunlight in small spaces like patios and balconies as the seasons change.
  - People invested in sustainability can help keep single-use, food-safe plastics used by the commercial food supply industry to provide bulk ingredients to restaurants, cafeterias, delis, bakeries, etc., can recycle these buckets by turning them into self-watering gardening containers, thereby keeping them in service for many years to come while also keeping them out of landfills.

# HOW TO USE YOUR SELF-WATERING CONTAINER

## Understanding your container's construction



This is one of the two buckets from which your container has been made. These self-watering containers are created using a 2-bucket system.



The particular buckets given to us by La Carreta for this project come with the added feature of long vertical grooves down the sides of each bucket, which helps us in two ways:



- By inserting one into another with the vertical grooves offset to each other, the upper bucket is lifted up to create even more space beneath it in the lower bucket than if it was placed into the lower bucket with the grooves aligned; placing the upper bucket offset into the lower bucket allows the lower bucket to better serve as the water reservoir for the system while the upper bucket serves as the growing chamber for the system.
- The grooves allow for water to be added to the water reservoir (lower bucket) from the side, which eliminates the need to add a refill tube to the system that would otherwise consume already limited space in the growing chamber (upper bucket).



The first step in converting two of these buckets into a self-watering container is to drill a drain hole about 3 inches up from the bottom of the reservoir (lower bucket). This drain hole prevents the reservoir from over-filling and is positioned low enough to prevent it from becoming blocked if the growing chamber (upper bucket) becomes so heavy with soil and plants that it settles more deeply into the reservoir over time, while still allowing ample space for the water in the reservoir. There should always be at least a ¼-inch gap between the surface of the water in the reservoir and the underside of the growing chamber to allow for excess water in the growing chamber to drip into the reservoir and to facilitate proper aeration



Once the drain hole in the reservoir (lower bucket) has been drilled, that bucket can be set aside and the bottom of the growing chamber (upper bucket) must be drilled out. At first, two holes are drilled in the center of the bottom of the growing chamber for the wicking ropes that will be added later. Then, drain holes are drilled around the bottom of the growing chamber so that excess moisture in the soil can drain from the growing chamber into the reservoir, once the container is fully built out and planted.



Using two 12-inch pieces of wicking rope or strips of nylon fabric, tie a knot into each piece approximately 4 inches from one end then thread the long ends of each piece down through the two center holes until the knots catch on the bottom of the inside of the growing chamber (upper bucket) so that the short ends of each wick stick up into the interior of the growing chamber and the long ends extrude out from the center of its bottom.



Once all the holes have been drilled and the wicks have been threaded, the growing chamber (upper bucket) is lowered into the reservoir (lower bucket) to create a fully constructed self-watering container.



The containers can be hand-decorated, if desired, using acrylic paint pens.

Once they are planted out, the established plants self-regulate their own water consumption through the permaculture strategy of sub-irrigation, in which capillary action and percolation facilitate the absorption of water into the soil in the growing chamber (upper bucket) from the wicks that are dangling into the water in the reservoir (lower bucket) and conveying it up into the soil in the growing chamber.

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## Planting & Maintaining Your Garden

- Find a good place to put your container where it's not in anyone's way and has access to sunlight or an indoor grow light; if keeping it indoors or on a patio/balcony, put a drip tray underneath it to catch any water that might spill from the drain hole in the reservoir (lower bucket) to protect the floor.
- Fill the growing chamber (upper bucket) with soil, making sure the upper bits of the wicking rope are sticking as straight up into the soil as possible, and add compost or fertilizer to the soil, mixing them together, before adding established baby plants or planting seeds.
- Top-water the soil to get it damp and help initially establish the self-watering cycle; only continue to top-water if seeds were planted and only until they sprout.
- Fill the reservoir (lower bucket) with water up to its drain hole; water will start coming out the drain hole once it is full.
- Once plants with roots are in the growing chamber (upper bucket), water should only be added to the reservoir (lower bucket) from the side down one of the vertical grooves built into the bucket; do not continue to top-water the soil, as this will leach the nutrients out of the soil and into the reservoir where they will create sediment that is never reabsorbed back up into the soil, which will starve the plants and clog the reservoir.
- Move your container around your available growing space throughout the seasons to give it the best access to sunlight, as needed, for the types of plants you're growing in it.
- Fertilize your plants with compost or store-bought fertilizers once every 6 to 8 weeks and use a simple soil test kit to determine which types nutrients to add to the soil when it's time to fertilize.
- Choose which plants to grow based on your own food preferences, your growing zone, the season, and the light and temperature conditions of your growing space.
- If you are eligible for SNAP benefits, use them to buy seeds to grow some of your food for a fraction of what it would cost to buy the same produce already grown at the store.
- For more instructional content and access to materials and supplies, please visit the Learn & Grow website at <https://learn-and-grow.org>.



## Buy Seeds with SNAP Benefits

- Not everyone qualifies for SNAP benefits (aka, “CalFresh,” “EBT,” or “food stamps”), but for those people who do, buying seeds to grow food can make those limited benefits go much farther; \$2 worth of seeds can potentially yield \$40 worth of food.
- SNAP does allow you to buy seeds and food-producing plants. However, each store decides:
  - Which items they carry.
  - Whether their checkout system recognizes seeds/food plants as SNAP-eligible.
  - Whether their store is authorized to accept SNAP at all.
- SNAP eligibility for seeds and plants varies by store, even inside the same chain. Before you shop, please:
  - Call the store to ask if they accept SNAP for food-producing plants.
  - Confirm that the item rings up correctly as a SNAP-eligible item.
  - Ask if seeds are sold seasonally or year-round.



## Grow Food from Kitchen Scraps

- Save the center cores of whole onions, including the roots, and replant them to grow more onions.
- Plant sprouted garlic cloves, potatoes, sweet potatoes, yams, ginger, and turmeric to grow more of each.
- Save the center core of lettuce heads and celery, put the stem into a small container of water with the remainder of the core sticking out, and plant it once it develops a robust system of roots in the water and leaves are coming out the top to grow a new head of lettuce or bunch of celery.
- Save the seeds of fruits you’ve enjoyed like melons, tomatoes, strawberries (the bumps on the outside of the berry’s skin are its seeds), beans, etc. and plant them to grow more food.

## Create Your Own Compost

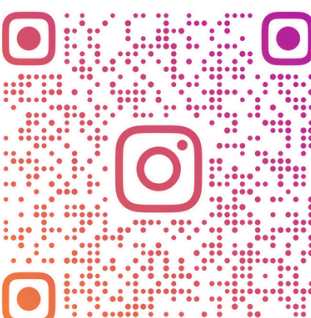
- Use inexpensive and/or recycled materials to create a composting system or purchase one to turn your kitchen and garden scraps into fertilizer for your garden.
- Keep the compost damp and turn it frequently to help it break down.
- Use a vermiculture composter with earthworms to do the turning for you and just keep it damp.
- Use the liquid run-off from your compost, called “leachate,” to fertilize your garden by dumping it directly into the soil; this can help restore nutrients otherwise stripped out of the soil by top-watering or rain and serve as a regular part of your fertilizer strategy.



FOR MORE INFORMATION  
<https://learn-and-grow.org>



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