



Therapeutic Horticulture Activity Self-Watering 5-Gallon Bucket Planter

Source: <https://extension.illinois.edu/dmp>

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Overview: The DIY Self-Watering Planter uses two 5-gallon buckets—one bucket acts as a reservoir for water, the other holds potting mix and the plant(s) of your choice. A plastic coffee can or similar-sized container maintains the plant-filled bucket at a fixed height to allow for an adequate water reservoir below. An old towel or other cloth acts as a wick to bring moisture up from the reservoir to the potting mix.

This growing system is most appropriate in situations where water demands are high either because of the plants being grown (i.e. tomato) or the environment (i.e. full-sun on pavement).

Precautions:

1. Electric drill and drill bits are used; prep can be done to eliminate the participants doing this part
2. Scissors for cutting towel/wick
3. Utility knife needed to cut plastic soda bottles for water reservoir.

Possible Populations:

1. Children to adults
2. Depending on physical abilities, may need assistance connecting wicking system from bottom bucket to top (step 7 below)

Completion Time: 60 - 90 minutes



Materials: (# of participants 1)

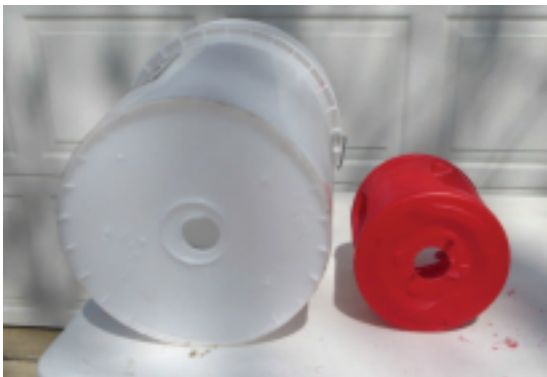
1. 2 - Food-grade 5 gallon plastic buckets
2. 1 - Plastic coffee can (2lb) or similar size food-grade plastic container
3. 3 - 20 oz water or soda bottles, or 2' of 1 1/2" PVC pipe
4. Old dish towel or similar size cloth (approx. 12"x8")
5. Twine, rubber bands, or plastic zip ties
6. 1 - Kitchen sponge (optional)
7. Potting mix (approx. 0.54-.66 cubic feet)
8. Duct tape or non-toxic glue (optional)
9. Electric (or cordless) drill
10. Cutting Bits - 1" hole, 1 3/8" hole and 1 3/4" hole
11. Drill bits - 3/8" bit
12. Utility Knife

Pre-Session Prep:

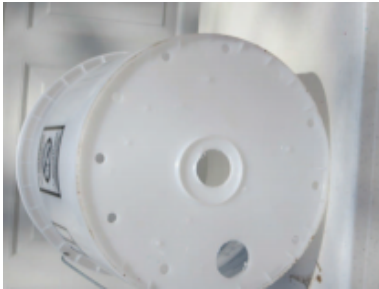
1. Collect supplies
2. Create finished example to show
3. If participants will not be using drill then pre-drill holes as specified in steps below
4. Cut towels prior to the session if participants are not appropriate for the task.

Step-By-Step Process/instructions:

1. Using 1 3/4" hole saw, drill hole in center of one 5-gallon bucket and the coffee can.



2. Using 1" hole saw, drill 4 holes evenly spaced along rim of coffee can (the open end).
Alternatively, use tin snips to cut 4, 1" triangles evenly spaced along the rim (rim forms the third side of the triangle).



3. Turn the bucket up-side-down. Using the 1 3/8" hole saw, drill one hole approximately one inch from the edge of the bucket.
Using a 3/8" drill bit, drill 10-11 holes evenly spaced approximately one inch from the edge of the bucket.



4. Bunch or roll the towle lengthwise and put 3-4 rubber bands, twine, or plastic zip ties around to hold the shape. This will act as the wick to draw moisture into the potting mix from the reservoir.



5. Thread the bundled dishcloth through the 1 3/4" hole in the center of the bucket and coffee can. The bottom of the coffee can should touch the bottom of the bucket.



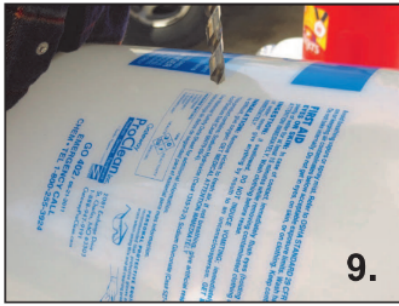
6. Approximately half of the cloth should remain in the bucket, and half inside the coffee can. If the cloth slides too easily and falls out, cut an "X" in the center of a kitchen sponge, place the sponge inside the bucket over the 1 3/4" hole and thread the cloth through the "X" in the sponge.



7. Carefully lower the top bucket, coffee can & wick assembly into the bottom 5 gallon bucket.



8. Once the top bucket is in place, make a mark on the outside of the bottom bucket where the coffee can and top bucket meet.

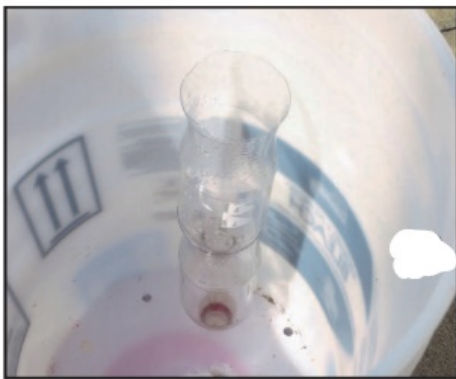


9. Remove the top assembly (top bucket, towel & coffee can) from the bottom 5 gallon bucket. Using the 3/8" drill bit, drill an overflow hole just above the point you marked on the bottom bucket. (The point at which the inner 5 gallon bucket rests on top of the coffee can).



10. After the overflow hole is drilled on the bottom bucket, reassemble the system by inserting the top assembly including the bucket, wick & coffee can into the bottom bucket.

11. Fill Pipe Assembly



- Option #1 (20 oz drink bottles):
Using a utility knife, cut the bottom from three 20 ounce drink bottles. Stack bottles end-to-end with the mouth of the lowest bottle resting in the 1 3/8" hole drilled in the top bucket during Step 3. Bottles do not need to be secured, but if desired use duct tape or non-toxic glue to fasten bottles together. Bottles should reach the top edge of the top bucket.

- Option #2 (PVC pipe):

Cut 45 degree angle on one end of 2' length of 1 1/2" PVC pipe. This allows water to flow freely into the reservoir. Insert the angled end through the 1 3/8" hole drilled in Step 3. Cut the pipe to the height of the bucket or slightly higher if desired.

12. Add damp soilless potting mix to the top of the bucket, being careful to extend the wick into the potting mix. Fill soil in around the fill tube without disturbing it. It is normal for a little potting mix to fall through the drainage holes.

13. Plant with desired plants (see Tips below for suggestions on plant choices).

14. Add water to the reservoir via the fill tube. Water



potting mix directly to initiate wicking action. Mulch can be added to the top of the container to conserve moisture. Check the reservoir and potting mix regularly. You may need to water the potting mix from time to time in addition to filling the reservoir to keep the wicking system in working order.





Tips:

1. Plastic 5-gallon buckets are a convenient size for growing plants in limited space, without needing any “in-ground” space. When choosing buckets, use new buckets or recycled buckets which have previously contained items such as food or soap. Avoid buckets which have previously contained pesticides, solvents, paints, or other potentially harmful or hazardous substances.

2. What Can I Plant?

Basic Guidelines:

Beans (bush or pole)

Beets

Broccoli

Cabbage

Carrots

Cauliflower

Corn

Cucumber

Eggplant

Lettuce

Melon

Onions

Peas

Peppers

Radishes

Spinach
Summer Squash
Swiss Chard
Tomatoes
Winter Squash

1 plant per bucket

Broccoli, Cabbage, Cauliflower, Cucumber, Eggplant, Melon, Peppers,
Summer Squash, Tomatoes, Winter Squash

- Use trellising or staking to utilize vertical space for vining crops

3 plants per bucket

Corn, Lettuce, Swiss Chard

6 plants per bucket

Beans (bush or pole), Peas, Spinach

12 plants per bucket

Beets, Carrots, Onions, Radishes

Things to consider in plant selections:

Plants with a more compact growth habit will perform best in the bucket planter. Look for words like “compact”, “patio”, “dwarf”, or “bush” in variety names and descriptions. Each bucket provides approximately 3/4 of a square foot of garden space (based on a 12 inch diameter bucket). The book Square Foot Gardening by Mel Bartholomew is a good guide for determining how much to plant in each bucket planter. This book gives suggestions based on the number of plants per square foot. Since the bucket planters are approximately 3/4 of a square foot, plant approximately 3/4 of the amount suggested for square foot gardening. An exception is where the suggestion is to plant one plant per square foot, since obviously there is no way to plant 3/4 of a plant! In this case plant one plant in the bucket planter.

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