

SCIENCE FAIR CENTRAL

MAKE. CREATE. EXPLORE.



HERBan GARDENING

Families design and build a year-round herb garden small enough to fit on a small patio or balcony that will also be easily taken apart and moved inside as the weather changes.

Background

Everyone in your family, all of the people you know (and even your pets), depend on plants to survive because of the oxygen and food they make through a process called photosynthesis.¹ Photosynthesis is the process plants use to change the sun's energy into the stored, chemical energy called glucose (also known as sugar), that they need to survive. If you have learned about photosynthesis in school, you might already know that plants need carbon dioxide from the air, sunlight, minerals, and water to grow. All of these reactants will be easily available for the herbs you select to grow yourself. Herbs are the perfect type of crop to grow in small containers at home!

When people grow their own food at home, they minimize their negative impact on the environment. This is called lowering your carbon footprint. Anytime you buy something like herbs at the grocery store, it requires burning fossil fuels for the product to travel from where it is grown to where it will be sold. Even more energy is used up to make the packaging that the products are sold in. When you plant your own herbs, instead of buying them at the store, you are adding plants to the environment that will remove harmful carbon dioxide in the air, produce more oxygen, and lower the amount of energy used to sell these products in a store. Not only are you being very eco-friendly by planting your own herbs, but you also get to enjoy having delicious fresh herbs at home anytime you want them for cooking!²

Plan

Together your family will work as a team, just as engineers often do. You will be assessing your available space and determining the best location to create your herb garden. Once you have done this, you will brainstorm the best options to maximize the productivity of your garden and design it



together. You have lots of options available, so get ready to be creative and think outside of the box. Don't be surprised if you start planting and decide to make some changes or refine your design as you create your herb garden. The fun part is that you really can't go wrong! No two herb gardens will be exactly the same. It's time to start designing and get planting!

Create

1. Assemble your team! All members of your family working on this project will have a necessary and important role to play.

- The **"Landscape Architect"** will lead the design component of the project.
- The **"Horticulturist"** will facilitate the planting of the herbs.
- The **"Supervisor"** will handle quality control and directing the activities to ensure the project is a success.

2. Determine the location of your herb garden. You need to select a spot that will receive at least 6 hours of sunlight a day.

3. Measure the space you have available for your herb garden.

4. As a team, decide what the best format will be for your herb garden. Below are 3 options to get you started when thinking about the most efficient herb garden design for your space.

- **Option 1: Vertical Herb Garden Possible Materials**
[3 Tier Planter](#)
[Plant Stand](#)
[Wooden Ladder Plant Stand](#)
[Garden Lattice](#) with [Plastic Terra Cotta Pots](#) and [S Hooks](#)
- **Option 2: Giant Container Possible Materials**
[Galvanized Tub](#) (sizes and amount TBD by design plan)
[Wooden Barrel](#) (sizes and amount TBD by design plan)
[Pebbles](#) (to fill in the empty space around the pots)
- **Option 3: Storage Box Plant Table Possible Materials**
[Deck Box Small](#)
[Deck Box Large](#)

Materials

- Kids' Gardening Gloves
- Adult Gardening Gloves
- Gardening Shovel
- Garden Soil for Vegetables & Herbs
- Plant Food
- Watering Can
- Tape Measure
- Pebbles
- Plastic Terra Cotta Pots or Clay Terra Cotta Pots (sizes and amount TBD determined by design plan)

Select from a variety of herbs:

- Basil
- Cilantro
- Parsley
- Mint
- Sage
- Dill
- Oregano
- Lavender
- Rosemary
- Thyme
- Lemon Balm
- Chives



5. Create a sketch of how you would like to assemble your herb garden in the space you have available.
6. Using the materials listed above as a starting point, determine the maximum number of pots or containers and sizes you will be able to fit in your design. **Make sure the pots you decide to plant your herbs in have a drainage hole so the extra water can drain away. If you are making your pot out of recycled materials, make sure you poke a hole in the bottom. Keep in mind, you will need to have space for these pots inside when the weather gets colder.**
7. Based on the number of pots or containers you will be able to incorporate, decide which herbs you want to plant and estimate the amount of soil bags you will need. Then, obtain the needed amount of soil.
8. Begin planting your herbs by first covering the bottom of the pot with 1"-2" of pebbles to increase drainage.
9. Add soil above the gravel until the pot is about 3/4 full.
10. Remove any plastic packaging from the herb plant and release the roots before placing it in the soil.
11. Using your small shovel, fill in additional soil around the herb plant and push the soil into place with your hands to ensure the herb remains stable in the pot. Be sure to leave a small gap of soil at the top of the pot so it does not overflow when watered.
12. Add plant food to each pot as directed by the instructions.
13. Water your herbs. Continue to check your herbs and water them regularly because the soil in a pot can dry out quickly.
14. Arrange your garden in the pre-planned design you created. Pots with herbs can be arranged vertically, placed in the large tub with small pebbles filling in empty space around the pots, or you can store your gardening supplies inside of the storage box and arrange the pots on top. Remember--there is nothing wrong with refining or changing your design as you start building! You also might want to make labels to know what herbs are in your garden.
15. Enjoy your fresh herbs as the plant grows bigger and bigger!



Next Steps

- Share your experience on social media by posting pictures of your herb garden and the meals you are able to cook incorporating your homegrown herbs.
- Share your herb crop with friends and neighbors. You can even bring some of your herbs into school to share with teachers so your classmates can see what a success your herb garden was.
- Try taking it a step further next year by adding to your garden. You can try planting fruits or vegetables in containers in addition to the herbs.

Works Cited

1. <https://ssec.si.edu/stemvisions-blog/what-photosynthesis>
2. <http://theecoguide.org/whats-environmental-impact-growing-your-own-food>

