

Plants and Youth: Designing and Building a Terrarium¹

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A terrarium is a miniature ecosystem made up of small plants living in a clear container. A terrarium can be purchased; however, many household items are suitable, such as a fishbowl, aquarium, or a large bottle or vase. Select a container big enough to hold 2 or more plants (Figure 1). Containers with small openings can be used but are more difficult to plant.



Figure 1. Clear containers may be found at many thrift stores or arts and craft stores.

Credit: Clarissa Chairez, UF/IFAS

There are two types of terrariums—an open container or a closed container. Open terrariums are ideal for succulents and dry loving plants as the open container allows for air flow—while a closed terrarium is better suited for tropical plants because it locks the moisture in to create a humid environment for your terrarium to thrive.

It is recommended to sterilize the container before creating your terrarium. Wash the container in hot, soapy water or a diluted bleach/water solution and rinse thoroughly.

Step 1: Line the bottom and about 1/5 of the side walls of the container with pea-size gravel or sand to provide drainage for excess water (Figure 2). The size and shape of the container will determine the amount of drainage material that should be used: a minimum of 1/2-inch (1.3-cm) layer but up to 1 1/2 inches (3.8 cm) if it is a large container.



Figure 2. Line the bottom of the container with gravel.

Credit: Amy Vu, UF/IFAS

Step 2: If you are creating a closed terrarium with a lid, place a 1/4-inch layer of horticultural charcoal above the pebbles to prevent the terrarium from developing a sour smell. If you are creating an open terrarium, you can skip this step and move to Step 4. Horticultural charcoal can be purchased at many home and garden stores.

Step 3: Place a piece of synthetic fabric over the drainage layer to prevent soil from settling into it and destroying its ability to drain. Materials such as weed cloth, cheese cloth, nylon hosiery, or even discarded sheer curtains are good choices. They are porous enough to allow water to pass through yet fine enough to hold soil particles, and they will not decompose rapidly.

Step 4: Add enough sterilized potting soil to fill approximately 1/5 of the container. The exact amount of soil used is going to be determined based on the size of your plant's root system. If you use small 2-inch "pixie plants" you'll want about the same size layer of soil. It is better to add less soil at the beginning and add more if your plants look like they're sitting higher than the soil level. When pouring in the soil, try to keep the soil particles off the inside walls of the container (Figure 3). The soil can

be leveled or molded into contours and valleys with a spoon or any other blunt instrument.



Figure 3. Add enough potting soil to fill 1/5 of the container.

Credit: Amy Vu, UF/IFAS

Step 5: Once your soil is prepared, begin selecting and arranging your plants (Figure 4). Most garden centers offer succulent and foliage in 2- to 4-inch pots. Choose the smallest available and ensure they have similar light and moisture requirements. Depending on the size of your terrarium and whether you intend to decorate with accessories, you may want to use fewer plants to leave room for both your decor and future growth. It is helpful to arrange the plants before planting them in your terrarium.



Figure 4. An assortment of 2-inch tropical plants perfect for a closed terrarium.

Credit: Clarissa Chairez, UF/IFAS

If the terrarium is to be viewed from all sides, the largest plant should be planted near the center. If the terrarium is to be seen only from 2 or 3 sides, the tallest plant should be placed in the background.

When you are ready to plant, clear a small area of soil to create a shallow hole, being careful not to dig to the cloth or drainage layers. To remove a plant from its pot, gently flip it over, supporting the base between your pointer and middle fingers. Lightly massage the roots before placing it in the hole. Once positioned, tuck the soil back around the roots and press down firmly to secure the plants. If the root ball remains exposed above the surface, add a small amount of soil until it is level.



Figure 5. An assortment of 2-inch succulents perfect for an open terrarium.

Credit: Clarissa Chairez, UF/IFAS

Step 6: It is time to decorate! Place accessories such as stones, shells, figurines, colored sand, and driftwood in the desired location(s) in the terrarium (Figure 6). Use a dry, soft paintbrush to gently sweep off any soil clinging to the sides of the container.



Figure 6. Place accessories to enhance the aesthetics of the terrarium.

Credit: Clarissa Chairez, UF/IFAS

Step 7: Water plants sparingly since excess water will saturate the soil and kill the plant roots (Figure 7).



Figure 7. Water plants lightly. Do not overwater because that may kill plant roots.

Credit: Clarissa Chairez, UF/IFAS

Cover and place the terrarium where it is exposed to bright indirect light, usually in a northeast or north window (Figure 8). Avoid direct sunlight, because it will heat the terrarium and burn the plants. If water condenses and fogs the sides of the container, remove the lid until all condensation evaporates, then replace the lid.



Figure 8. Cover and place the terrarium in bright, indirect light.

Credit: Amy Vu, UF/IFAS

Terrariums should only be watered when the soil is almost dry. Since the container has no drainage, add only enough water to moisten the soil. Too much water will rot the plant roots.

You can use a water-soluble houseplant fertilizer (mixed at 1/4 the recommended rate) if your plants begin to yellow but add fertilizer sparingly. You don't want the plants to outgrow the container, and overfertilizing will burn and/or kill them.

Definition of Terms

Condensation—the change of water from its gaseous form (water vapor) into liquid water.

Contours—Furrows or ridges on the soil surface.

Foliage plants—Plants grown primarily for the beauty of their leaves and stems. Foliage plants are typically tropical plants that are susceptible to cold injury, so they are usually grown indoors.

Indirect light—Light that is reflected from one surface to another.

Porous—Having pores or small holes that allow liquid to pass through.

Sterilized soil—Soil that has been heated to kill diseases.

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