# Building a Terrarium

**Overview:** A terrarium is a miniature garden grown inside a covered glass or plastic container. It is a low maintenance way to incorporate plants into your classroom or home and an excellent tool for teaching children about the water cycle as it demonstrates evaporation, condensation and precipitation. In the presence of light and heat, water evaporates from the plants through transpiration and from the soil. Since it is an enclosed environment, when the water vapor hits the side of the container, it condenses. Once enough water accumulates or the temperature decreases, the condensation will then precipitate down the sides of the container back into the soil.

## Materials:

- an enclosed container
- pea gravel or small rocks
- potting soil
- small indoor or tropical plants
- charcoal (optional)

**Approximate Time to Complete:** 30 minutes to 1 hour

**Location:** Indoor

**Ages:** all ages

**Season:** all seasons

## Instructions:

1. Find an appropriate container. Glass jars, fish bowls and tanks, clear plastic bottles and food containers can all make fine terrariums. Just make sure there is enough room to reach your hand into your container for planting and maintenance.
   *Clear plastic soda bottles are commonly used in school settings because they are readily available and inexpensive. To create, cut off the top of a large, clear plastic soda bottle, leaving a container that is approximately 8 inches tall. After planting in the soda bottle, you can either tape the top back onto the soda bottle or just cover it tightly with plastic.
2. Clean the container using soapy water and rinse well. Dry completely.
3. Cover the bottom of the container with ½ inch (for small containers) to 1-1/2 inch (for large containers) of pea gravel for drainage. This mimics the bedrock found under our soils and allows access water to drain from the soil. You can also add a few granules of filtering charcoal (not the type used for barbecuing) to the top of the gravel to help remove odors. The charcoal is optional and is not needed if your terrarium maintains proper moisture levels.



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*5210 Healthy Children is adapted from Let's Go! www.letsgo.org.*

4. Next fill the container to approximately one-third to one-half full with moist potting mix. The amount of soil you put in will depend on the size of the container (you need to have enough room for plant roots). You should use a sterilized potting soil mix to avoid problems with molds and fungi (small bags of potting soil are available at most garden centers).

The moisture level of the soil when you put it into your terrarium is very important. Pour the soil into a bowl or tub and mix with water until the soil is moist enough to cling together in a ball when pressed into the hand. If water drips from the soil when pressed into a ball, then it is too wet and you should add more dry potting soil to your mixture. Once you find the perfect balance, place the soil in your container. Try to avoid getting soil particles stuck on the sides of the container above the soil level. Many potting mixes contain slow release fertilizers. If the soil you purchased does not contain any fertilizer you may want to add a small number of slow release fertilizer pellets or some organic fertilizer like worm castings to your mix before planting. You want your plants to stay small and grow slowly, so you do not need much.

5. Next add your plants. You need to look for plants that are small, slow-growing, and perform well in humid environments. How you arrange the plants will depend on the size and location of the terrarium. If you will be viewing the terrarium from one side, then place the tallest plants in the back and shortest plants in the front. If your terrarium will be viewed from all sides or you plan to rotate it, plant the tallest plants in the middle and the shorter plants along the outside.

There is a wide range of plants to choose from. Most garden centers have an area reserved for indoor plants and you can usually find a variety of plants in 2 to 4 inch pots.

Some recommended plants to use include:

- African violet
- artillery fern
- false aralia
- jade plant
- miniature peperomia
- nerve plant
- oxalis
- pink polka dot plant
- prayer plant
- small ferns
- small peace lilies
- small philodendrons
- spider plant
- strawberry begonia
- Swedish ivy

These are just a few suggestions. Experiment with different plants. If they appear to grow too vigorously or respond poorly to the humidity, remove them and try something new. You can also try growing plants from seeds and cuttings.

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6. In addition to plant material, you can also be creative and add other objects to create mini-landscape scenes. For instance you may want to add decorative rocks, small animal figurines, small bridges or mirrors to look like mini ponds.

7. After planting, attach the container lid or cover with plastic. Place the terrarium in a windowsill with indirect lighting or under grow lights. Do not place it in strong direct sunlight or water will evaporate too quickly and plants may scorch.

Observe your terrarium closely for the first few days to make sure you have the proper moisture level. You'll know that the terrarium contains the right amount of water if the sides and top get misty with water droplets when in bright light. If there is no moisture along the sides, then you need to add some more water. If the sides are always very wet and it is hard to see the plants, then there's too much water and you should remove the top for a few hours and allow some of the excess water to evaporate. Once you achieve the perfect balance, it will not need frequent attention.

8. Check on your terrarium periodically. Prune or remove plants with excessive growth. You want to avoid plant leaves touching the sides of the container as much as possible to prevent constant water sitting on the foliage. Also check on the moisture levels as some water may be lost over time.

*This information was adapted from kidsgardening.org.*

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