



ATLANTA BOTANICAL GARDEN

Atlanta Botanical Garden

Desert Discovery (6th-12th)

Description: Learn about the unique properties of medicinal plants that are found in desert habitats. Explore the adaptations needed for plants to thrive in harsh environments. From spikes to succulents, the plants in the Garden's desert house are beautiful demonstrators of diversity.

Standards: S7L1.a, S7L4.a.d, SEC3.d, SBO5.a, SBO5.c

Pre-Visit:

Guiding Questions: What part of the world are deserts located?

What to Read/Watch: [Deserts 101](#), [Welwitschia of the Namib Desert](#), [Why Does the Earth Have Deserts?](#), [Saguaro Cactus and the Sonoran Desert](#)

Post-Visit:

Questions: How do you think rising temperatures from climate change affect desert biomes?

Activities: *Make a Moss Terrarium:* Finding water in a desert is tough for the plants that live there so they have to have special adaptations to help them survive. Most are familiar with cacti and succulents that have deep fleshy stems and leaves that hold water inside for long periods of time. But there's another surprising plant that can thrive in a desert habitat, moss! Moss is an incredible resilient plant with a multitude of varieties found in habitats all over the world. Desert moss is adapted to absorbing and retaining moisture from the atmosphere. You can read more about it's mechanisms [here](#).

Make a moss terrarium at home to see first hand the amazing properties of moss!

You'll Need:

- Glass jar
- Plastic Wrap
- Rubber Band
- Charcoal (optional/best results)
- Small pebbles
- cloth or mesh (window screening, landscape fabric, cheesecloth, gauze or sock material will do)
- Dirt (can be collected with moss or use potting soil)
- Moss
- Water (squirt bottle works best)
- Toys or rocks to decorate the ecosystem (optional)

How to Start: Collect moss from outside. There are many varieties of mosses that grow wild in Georgia and can be found on the ground and on rocks and trees, even in urban areas. Look for

the plant growing in shady and moist areas. You may choose to gather one type of moss or several types. Once you have collected the plants, store in a plastic bag and spray with water to keep wet. Please do not trespass and get permission before you remove moss from your yard or a neighbor's yard.

1. Wash your jar using a dishwasher or with dish soap and warm water. Allow to dry thoroughly.
2. Trace the bottom of the terrarium jar on the cloth or mesh and cut out. Set aside.
3. Place a layer of pebbles at the bottom $\frac{1}{4}$ of the jar.
4. (Optional) Sprinkle a layer of charcoal over the pebbles. Charcoal helps eliminate odors, absorbs toxins, and prevents the buildup of bad bacteria in your terrarium.
5. Place the cut out cloth or mesh on top of the charcoal and pebble layer. Trim cloth if necessary.
6. Spray one squirt of water onto the netting to prevent soil from falling through to the rock layer.
7. Spread a thin layer of soil on top of the cloth.
8. Add moss to the jar. The jar should now be $\frac{1}{3}$ filled and $\frac{2}{3}$ space.
9. Add rocks or toys for decoration.
10. Spray one to two squirts of water into your jar.
11. Cover jar with plastic wrap and secure with a rubber band. Poke holes into the plastic wrap for sufficient air flow.
12. Place terrarium in indirect sunlight and water as needed.

Try making a second terrarium with small rocks and/or sand instead of dirt and observe if you notice a difference in your moss.

Vascular vs. Nonvascular Plants: Moss is classified as a nonvascular plant. Grasses, trees, cactus, etc. are all classified as vascular plants. Compare plant structures found in moss with plant structures found in cacti. How does each plant collect water? How does each plant reproduce? Are both plants able to perform photosynthesis?