ATLANTA BOTANICAL GARDEN

At Home Science: STEM Challenge

Build Your Own GreenHouse

Standards: *SKE2.c, SKL2.b, S1L1.a.b.c, S2L1.b, S2L1.d, S3E1.b, S3L2.b, S4L1.c,* SBO3.c.d, SBO6.c

Guiding Questions: *What do plants need to grow? What is a greenhouse? How can greenhouses help conserve rare and endangered plants? What mechanisms of a greenhouse make it effective at growing plants indoors?*

Background Information

Would you believe that you could walk through a Tropical Rainforest in the middle of a city? If you visit the Atlanta Botanical Garden, you can! The Garden is home to plants from around the world and our collection is full of rare, exotic, specimens. Sometimes it can be a challenge to ensure plants from different regions are getting what they need to survive. Luckily, we can grow plants indoors with the help of a greenhouse. A greenhouse is a specially designed building for growing plants indoors. With a greenhouse, you can control temperature, and how much water and sun your plants receive.

STEM CHALLENGE: Can you build your own greenhouse?

Build a greenhouse and compare its effectiveness with helping you grow a plant from seed. To be most effective, your greenhouse should 1) be in a clear container so sunlight can penetrate and 2) have holes for airflow. You can follow the instructions below to build your greenhouse, or get creative and repurpose other old plastic containers for your design. Experiment with different materials and explore what worked best.

What You'll Need

- Cleaned, plastic containers
- Scissors
- Soil or dirt
- Hand shovel
- Water
- Seeds

Building Your Greenhouse

1. Thoroughly clean plastic containers of your choice. You can use milk jugs, clear plastic cups, yogurt containers, empty soda bottles, etc.
2. Your greenhouse will need a top and bottom. If using a large container like a milk jug, have an adult carefully help you cut your container in half.
3. Have an adult help you poke a few holes in the bottom of your container for water to drain. If your container doesn't have a lid, then also poke air holes in the top so your plants can breathe.
4. Fill the bottom half of your container with soil. Plant your seeds and lightly water.
5. Place your greenhouse in a sunny spot and monitor your plant growth!
6. Plant seeds in a separate container without a greenhouse and compare the plant growth with the plants in your greenhouse; or, design two different greenhouses and see which was more successful.

Additional Resources

What is a Greenhouse?
Recycled Greenhouse
How Does a Greenhouse Work?
Growing Plants with Micropropagation
Learn How the Atlanta Botanical Garden Uses Greenhouses to Conserve Rare and Endangered Plants