

BioDome Experiment

Different types of plants grow in different environments. Some environments are more arid or dry and some are more tropical or wet. A rainforest is a hot, wet climate but doesn't have a lot of light. A desert is hot and dry and doesn't have much water. A prairie has medium amounts of light and water. You have likely learned that in order for plants to grow, you have to have sunlight, water and nutrients. This allows for photosynthesis to take place. Eventually your plants are going to run out of carbon dioxide, being closed up in the bag.

Key terms: Photosynthesis, Precipitation, Condensation, water-cycle, Climate

Objective: Learn how the plants biome can recycle nutrients and affect the way a plant grows.

Materials Needed

- 2 liter soda bottle, cut in half
- gallon-size resealable storage bag
- pebbles
- potting soil
- seeds - grass, beans, or whatever you have available
- water

Instructions.

1. First, pour pebbles into the bottom half of the soda bottle. The pebbles should be about a half an inch deep.
2. Then, pour some potting soil over the pebbles. Your biome should have about twice as much soil as pebbles.
3. Now, to plant the seeds. Make a trench down the center of the soil that's as deep as your fingernails.
4. Then sprinkle a pinch of seeds in the trench.
5. Cover it up with the soil.
6. Water the soil just until you see the water collect at the bottom of the pebbles.
7. Put the biome in a plastic bag and seal it.
8. Put your biome in a sunny place and in about three to four days your plants should start growing.

9. Complete the Added Experiment for extra points.

Now, you've created an environment for your plants. You won't need to water your seeds again because the water will recycle itself (The Water Cycle). The roots of the plant absorb the water and the water travels up the stem to all the parts of the plant. When the water gets to the leaves, some of it evaporates. Some water also evaporates from the soil. The evaporated water forms drops on the bag. This is called condensation. The condensation then falls back down to the ground, like rain. This is called precipitation. This is the water cycle-evaporation, condensation, and precipitation. The cool thing about a biome in a baggie is that everything your plants need is there. It's got water, nutrients from the soil, air from the bag, and it makes food from the sun.

Added Experiment

Make another biome and change the amount of light and water it gets. This way you can see how your plants grow in different environments. Compare this to your first.

Biome 1	Observation
Day 1	
Day 5	
Day 10	

Biome 2 (extra)	Observation
Day 1	
Day 5	
Day 10	
Compare to Biome 1	

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