



HOMESCHOOL SCIENCE EXPERIMENT

GROWING A MINI ECOSYSTEM IN A SEALED JAR



Discover how living things, air, water, and soil work together in a tiny, self-contained ecosystem.



OBJECTIVE

To build a mini ecosystem in a sealed jar and observe how the components interact and support life.



QUESTION TO EXPLORE

Can a mini ecosystem in a sealed jar stay balanced and support life?



MATERIALS

- ☐ 1 clear glass jar with lid (pint or quart size)
- ☐ Small pebbles or gravel (1/2-1 inch layer)
- ☐ Activated charcoal (optional, 1-2 Tbsp)
- ☐ Potting soil (about 2-3 inches)
- ☐ Small plants (moss, ferns, or other tiny plants)
- ☐ Leaf litter (dry leaves)
- ☐ Spray bottle with water
- ☐ Spoon or small scoop
- ☐ Tongs (optional)
- ☐ Paper and pencil for observations



BACKGROUND

An ecosystem includes living things (plants, tiny organisms) and nonliving things (water, air, soil, rocks). In a sealed jar, water evaporates and condenses on the glass, then returns to the soil and plants. Plants use carbon dioxide from the air and release oxygen. This creates a cycle that can help the ecosystem stay balanced.



PROCEDURE

1. Rinse the jar and let it dry.
2. Add pebbles or gravel to the bottom of the jar (this helps with drainage).
3. (Optional) Add a thin layer of activated charcoal.
4. Add potting soil on top of the gravel (about 2-3 inches deep).
5. Plan your mini landscape. Make a small hole in the soil for each plant.
6. Plant your moss or small plants in the soil.
7. Add a few dry leaves on the soil surface.
8. Lightly mist the plants and soil with water. The soil should be damp, not soggy.
9. Wipe the inside of the jar above the soil line with a dry paper towel.
10. Seal the jar with the lid.
11. Place the jar in a spot with bright, indirect light (not direct sunlight).
12. Observe and record changes over time.



TIPS

- Do not open the jar unless absolutely necessary.
- If there is a lot of water condensation and the soil looks very wet, open the jar for a few minutes, then seal it again.
- Every ecosystem is different—yours may look unique!



OBSERVATION TABLE

Date	What I See (Plants, Water, Soil, etc.)	Changes or New Observations	Questions I Have



REFLECTION

What did you learn from your mini ecosystem? How do the parts work together?
