

DIY ECOSYSTEM

Looking for a creative and educational science fair project? Try building a self-sustaining mini ecosystem in a jar for classroom or home use! This project is perfect for demonstrating the relationships between living organisms and their environment in a hands-on way.

INSTRUCTIONS:

STEP 1: Start by adding a layer of small rocks or gravel to the bottom of your jar for drainage.

STEP 2: Sprinkle a thin layer of activated charcoal on top of the rocks.

STEP 3: Add a layer of potting soil on top of the charcoal. The soil provides a habitat for the plants and any small organisms.

STEP 4: Plant your small plants gently into the soil to make sure they are well-rooted.

STEP 5: If you'd like to observe animal life in your ecosystem, you can add small decomposers like worms or pill bugs.

STEP 6: Lightly spray your mini ecosystem with water.

STEP 7: Once your ecosystem is set up and watered, seal the jar tightly with the lid. Place the jar in indirect sunlight. Over the next few days and weeks, observe your mini ecosystem.

Materials:

Clear jar with lid
Small rocks or gravel

Activated charcoal

Potting soil

Small plants

(moss, ferns, etc)

Optional: small insects like
worms or pill bugs

Water spray bottle



THE SCIENCE

A sealed jar ecosystem is a perfect model of how real ecosystems work! The plants use sunlight to photosynthesize and produce oxygen. They also release moisture, which condenses on the walls of the jar and eventually waters the plants again. Any small insects or decomposers will help recycle nutrients by breaking down organic material. This project demonstrates the water cycle, photosynthesis, decomposition, and interdependence of living organisms—all within a closed system!

DIY Ecosystem

Use this worksheet to process and evaluate your observations.



Did your plants grow in your ecosystem?

What happens to the water that you add?

Does condensation form inside the jar?

How do the organisms inside adapt?

Draw a sketch of your ecosystem below