

Project FOCUS
Best Lessons
FOURTH GRADE

Title of Lesson: Mini Ecosystem

Theme: Energy Flow Between Habitats

Unit Number: **Unit Title:** Ecosystems

Performance Standard(s) Covered (enter code):

S4L1. Students will describe the roles of organisms and the flow of energy within an ecosystem.

Enduring Standards (objectives of activity):

Habits of Mind

- Asks questions
- Uses numbers to quantify
- Works in a group
- Uses tools to measure and view
- Looks at how parts of things are needed
- Describes and compares using physical attributes
- Observes using senses
- Draws and describes observations

Content (key terms and topics covered):

Ecosystems
Habitats
Energy flow
Organism
Water cycle

Learning Activity (description in steps)

Abstract (limit 100 characters): The students will make a miniature ecosystem that can sustain different kinds of living organisms.

Details: Cut the top off the first of the two liter bottles, the top and middle off the second, and the bottom off the third. These will serve as the three layers of the ecosystem. Save the bottom to the third bottle so it can be reattached later. Add about an inch of gravel to the first two liter bottle with the top cut off. Fill this bottle close to the top with water and add a few drops of dechlorinator if available. Plant the water plants in the gravel and add any aquatic animals to the water. Next, slip the bottle without the top or bottom just inside of the first bottle and tape it. This will keep water from escaping when it drains from the top bottle and act as a connector between the top and bottom habitats. Use the rubber band to attach the netting to the top of the last two liter bottle. Turn this bottle upside down and slide it into the connector bottle and tape it. Add about an inch of gravel to the top bottle and then add two or three inches of soil on top of that. Any dead leaves and sticks will be added to this layer as well. Plant the seeds in the soil and then add any insects to the top habitat. Finally, tape the bottom of the two liter bottle back in place to close the mini ecosystem. Keep the ecosystem in sunlight and the plants should grow and the water should circulate.

Materials Needed (type and quantity): 3 two liter bottles per habitat

Gravel
Clear packing tape
Rubber band
Netting
Dechlorinator (optional)
Soil
Fish, snails, or other aquatic life
Aquatic plants such as Anachris
Crickets, earthworms, or other insects
Small dead leaves and sticks

Notes and Tips (general changes, alternative methods, cautions): Precut the bottle to save time and to make it less dangerous. Pantyhose works fine for netting. Do not let the kids handle the fish if you use them.

Sources/References:

- 1) Scribbit-Motherhood in Alaska, Kid's Summer Crafts: Build an Ecosystem
- 2)
- 3)