granny@grannysgardenschool.org 20 Miamiview Lane, Loveland, OH 45140 513-324-2873
www.GrannysGardenSchool.org

Exploring Habitat with Terrariums
Grade Three

Lesson Summary

When to use this lesson
Use this lesson to understand how living things survive in their environment.

Objective
Students understand that living things depend on living and nonliving environmental components.

Standards
S3L1. Students will investigate the habitats of different organisms and the dependence of organisms on their habitat.

a. Differentiate between habitats of Georgia (mountains, marsh/swamp, coast, Piedmont, Atlantic Ocean) and the organisms that live there.
b. Identify features of green plants that allow them to live and thrive in different regions of Georgia.
c. Identify features of animals that allow them to live and thrive in different regions of Georgia.
d. Explain what will happen to an organism if the habitat is changed.

Materials
- Terrarium container for each group of students (see Sources section for more information)
- Coarse sand, not play sand
- Garden soil; ours has a lot of decomposed and decomposing leaves
- Quick sprouting seeds; we use rye seeds
- A spray bottle filled with water for each group of students
- One small container (about 1 cup size) per student to create the soil layer, use the cups again to collect animals
- Trowels

Estimated Duration
- 30 minutes in one session to build the habitat
- 30 minutes in a second session to add the animals
- Extra time for classroom observations

Creating the Habitat

- At this point in our schedule, students have examined earthworms, pillbugs, and sowbugs to understand what they need to live and how their unique traits help them live in their environment. The terrarium helps to expand the learning by exploring their interaction with their habitat.

- **What is habitat?** A habitat is the place where an organism finds everything it needs to live.

- **What is a terrarium?** A terrarium is a small, indoor habitat for organisms that live on land. Today we'll build the physical terrarium environment.

- **What is an organism?** An organism is any living thing, including plants, animals, and fungus. Today we'll plant seeds to grow plants in the terrarium.

- **What will the living things in our terrarium need?** Living things need air, food, water, shelter, and the right kind of space.

- **What can we collect from the garden to meet the needs of terrarium organisms?** We'll add soil and mix in sand to provide shelter and spaces to hold water and air. We'll collect brown and green leaves to provide food. We'll grow grass, add a twig, and add a rock to provide shelter.

- Divide the class into groups of students who will build a terrarium habitat. One habitat for each table group of students works well so students have a habitat to observe in their learning area.

- Take the terrariums outside to create the habitat. Fill the container halfway with soil. For our containers, each student in a group adds two 1-cup scoops of garden soil. Moist soil is best. Tell students to avoid spots with many garden animals. We'll collect animals in the following week. Students should avoid locations with ants. When we add soil animals, we'll collect primarily earthworms, a slug or two, pillbugs, and sowbugs – those animals that will want to stay in the terrarium.

- Add one cup of sand and have students take turns mixing the soil and sand. The soil should stay loose and fluffy. If the soil is patted down, it may become too compacted for the animals that will live there.

- After the soil foundation is ready, decide which group members will collect brown and green leaves and how many. We add about five brown and five green leaves. Decide who will collect the twig and a small rock.

- As students are deciding where to place the collected items, tell them to leave open spaces for the grass to grow.

- Distribute a small pinch of seeds to each student. The seeds are scattered on the surface of the soil and do not need to be covered.

- Distribute a spray bottle to each group. Each student sprays the surface with 5 squirts to moisten thoroughly the seeds, soil, and dry leaves. Students will continue with this in the classroom to ensure the seeds grow and that the habitat is moist for the animals.

Adding the Animals

- Take the terrariums outside to add garden animals.

- Decide how many and what kinds of animals to add to the terrariums. We add 4-5 earthworms and a minimum of 6 pillbugs and sowbugs. If we're lucky, we find a slug or snail for the terrariums. Millipedes are okay to keep. We avoid centipedes, ants, and beetles. We focus on the animals we think will remain in the soil.

- Each student receives a cup to hold the animals they find and a trowel to help in the search for animals. Students should not dig in areas that will harm plants.

- Assign students in each terrarium group an animal to locate.

- Found animals are added directly to the terrariums.

- From here classroom teachers continue with terrarium activities and observations in the classroom. Keep the contents moist with a couple of squirts from a mister each week.

Observations and Discussions

- If you have extra time or would like to add another session at the start of the project, spend time examining the soil. Ask for descriptive words about the color, texture, and scent of the soil, using senses like sight, hearing, touch, and smell. Discuss the non-living parts of soil, dead plants and animals and very small rock particles. Discuss what soil needs to support living things – pockets for air and water, food sources for soil animals.

- Some observations to make:
  - Do you notice small piles of worm castings on the surface of the soil?
  - How do the contents change over time – mold, sprouting grass, rotting and eaten leaves?
  - What do you notice around and under leaves, twigs, and rocks? Remember to return moved items to their original location.
  - Are their preferred foods?

- Discuss the food chains in the terrarium.

- Discuss that the animals in the terrarium return nutrients to soil through their castings and frass.

Sources

- Hosoume, Kimi and Jacqueline Barber. Terrarium Habitats. Great Explorations in Math and Science, Lawrence Hall of Science, University of California at Berkeley. Berkeley, CA: LHS GEMS, 1994.
- Sample terrarium container: Carolina Biological Supply Company, http://www.carolina.com/animal-habitats/aquarium-terrarium-plastic-1-1-2-gal/FAM_670388.pr?catId=&mCat=&sCat=&ssCat=&question=terrarium

