

A Roly Poly Habitat



Photos by Joseph Berger, Bugwood.org

OVERVIEW: Children are fascinated by roly polies, also known as pill or doodle bugs. Most likely your students have begged to take their roly polies inside when it's time to leave the garden. In this lesson, your students can do exactly that. They create an indoor habitat for the roly polies they collect from the garden. This habitat allows them to observe the roly polies closeup and compare them to insects and other creatures found in the garden.

GRADES: PreK-5

OBJECTIVES: The student will be able to:

- List elements a roly poly needs to survive.
- Create a habitat sufficient for a roly poly.
- Observe and write about the behavior of roly polies.
- Compare the roly poly to other insects found in the garden.

MATERIALS:

Containers that allow circulation A clear plastic food container from a restaurant or grocery store with a lid is ideal. Be sure to punch small holes in the lid to allow air to circulate.

Roly polies

Soil

Dead leaves or other dead or dying plant material from the garden

A bit of rotting wood

Plastic bags or other containers for collecting habitat materials

Spray water bottle

Science journals

Note: It is up to you how many habitats to make. You can make one large one for the entire class or have students make smaller ones in small groups.

ROLY POLY FACTS

A roly poly is not an insect. It is related to the lobster, shrimp, and crab, but it is the only *crustacean* that can spend its entire life on land. It has a shell-like exterior that looks like armor and it can roll into a ball when threatened.

A roly poly is known by many other nicknames: pill bug, armadillo bug, potato bug, or doodle bug. Its scientific name is *armadillidium vulgare*.

Roly polies must live in damp locations because, like their ocean relatives, they use gill-like structures to exchange gases. They require moist environments to breathe, but cannot survive being submerged in water. They can usually be found in nature under rotting logs or leaves.

A roly poly eats rotting plants and are good for your garden because they assist in decomposition and help return nutrients for plants to the soil. They don't bother living plants.

Roly polies are also good for the environment because they can get rid of heavy metal pollutants in the soil. They can take in metals such as copper, zinc, lead, arsenic, and cadmium, which they crystallize in the middle of their gut. This allows them to survive in contaminated soil where other species can't.

Like crabs and other crustaceans, roly polies carry their eggs around with them in a special pouch on the underside of their bodies. When the tiny baby pill bugs hatch, they remain in the pouch for several days before leaving to explore the world on their own.

PROCEDURE:

Explain to students that you are going to make a habitat or home for roly polies from the garden, so that you can observe their lives up close. Share the roly poly facts with them, emphasizing that the roly poly is a crustacean, not an insect. You may ask older students to research other roly poly facts in small groups and share them with the class.

Tell the students you will be gathering shelter and food, as well as the roly polies, on your trip to the garden. Assign tasks to collect soil, dead leaves, other garden debris, rotting sticks or twigs, and roly polies.

Make the habitats by spreading garden soil on the bottom and placing twigs, dead leaves and other decaying vegetation on top. Make sure the entire habitat is damp but not soaking wet. If it feels too dry, spray water on the area lightly with a spray bottle.

Give the roly polies a day or two to adjust to their new home, and then ask students to begin observing them daily for a week or two and writing their observations in their science journals. Students may have to lift the leaves and debris lightly with a pencil in order to see the roly polies.

Important: Assign a student every day to check on the roly poly habitats to ensure that they remain damp, but not soaking wet. If the habitat dries out completely, the roly polies will be unable to breathe, and they will die.

At the end of the observation, return the roly polies and the contents of the habitats to the garden.

HOW TO ATTRACT ROLY POLIES

If your students are having difficulty finding roly polies in the garden, they can make a roly poly lure out of a baking potato. Cut the potato in half lengthwise. Hollow out the center of both halves. Tape the potato back together loosely. Cut a small hole at one end as a tunnel to the hollow area. The potato will serve as a shelter for roly polies to obtain food and water. Check the shelter on garden visits by gently undoing the tape.

EVALUATION:

Students write sentences, a paragraph, or essay about what they have learned about the roly poly and its behavior during the observation.

EXTENSION:

Students research another insect or decomposer they have seen in the garden and compare their structure and behavior to the roly poly.

New Jersey Learning Standards

*Science: PreK:5.1.1-5, 5.3.1-3 K:LS1.C, ESS3.A 1:LS1.A,D 2:LS1.B
3:LS1.B 4:LS1.A 5:LS2.A*

*English Language Arts: K:W.K.2,3 1:W.1.2,7 2:W.2.2,4,8
3:W.3.2.A-D, W.3.4,8 4:W.4.2.A-E, W.4.4,8
5: W.5.2.A-E; W.5.4,8*