

Let's Roll

The pill bug goes by many names—roly-poly, woodlouse, armadillo bug, potato bug. But whatever you call it, it's a fascinating creature...or actually 4,000 species of creature. The nocturnal crustaceans have seven pairs of legs, segmented sections like a lobster's tail, and prefer humid environments. They eat rotting vegetation and help nutrients in it get returned to the soil for plants to feed on, so they're not pests. They don't bother living vegetation. These insights into pill bugs will give you a newfound respect for the tiny tank living beneath your flower pots.



Here are some fun facts about pill bugs...

Pill Bugs Are Crustaceans, Not Insects: They are more closely related to shrimp and crayfish, than to any insect.

Pill Bugs Breathe Through Gills: Like their marine cousins, terrestrial pill bugs use

gill-like structures to exchange gases. They require moist environments to breathe but cannot survive being submerged in water.

Pill Bugs Molt In Two Sections:

Like all arthropods, pillbugs grow by molting a hard exoskeleton. But pillbugs don't shed their cuticle all at once. First, the back half of its exoskeleton splits away and slides off. A few days later, the pillbug sheds the front section. If you find a pillbug that's gray or brown on one end, and pink on the other, it's in the middle of molting.



Pill Bugs Mothers Carry Their Eggs In A Pouch: Like crabs and other crustaceans, pill bugs tote their eggs

around with them. Overlapping thoracic plates form a special pouch, called a marsupium, on the pill bug's underside. Upon hatching, the tiny juvenile pill bugs remain in the pouch for



several days before leaving to explore the world on their own.



Pill Bugs Don't Urinate:

Most animals must convert their wastes, which are high in ammonia, into urea before it can be excreted from the body. But pill bugs have an amazing ability to tolerate ammonia gas, which they can pass directly through their exoskeleton, so there's no need for them to urinate.

Some Species Of Pill Bugs

Curl Up In A Ball: Most kids have poked a pill bug

to watch it roll up into a tight ball. In fact, many people call them roly-polies for just this reason. Their ability to curl up distinguishes the pill bug from another close relative, the sowbug.



A Pill Bug's Blood Is Blue:

Many crustaceans, pill bugs included, have hemocyanin in their blood. Unlike hemoglobin, which contains iron, hemocyanin contains copper ions. When oxygenated, pill bug blood appears blue.

Pill Bugs Eat Metals: Pill bugs are important for ridding the soil of heavy metal ions by taking in copper, zinc, lead, arsenic, and cadmium, which they crystallize in their midgut. Thus, they can survive in contaminated soil where other species can't.

They Are The Only Land Crustacean: Pill bugs represent the



only crustacean that has widely colonized land. They're still a bit "fish out of water," though, as they are at risk of drying out on land; they haven't developed the waterproof waxy coating of arachnids or insects. Pill bugs can survive until they get down to 30 percent dry.

Excerpted from an article by Debbie Hadley (Hadley, Debbie. "15 Fascinating Facts About Pill Bugs." ThoughtCo, Oct. 19, 2018, thoughtco.com/fascinating-facts-about-pillbugs-4165294.)

Books about Pill Bugs

Here are some books to learn more:

I'm a Pill Bug by Yukihiisa Tokuda

Hank's Big Day, the Story of a Bug by Evan Kuhlman and Chuck Groenink

Next Time You See a Pill Bug by Emily Morgan

Rolypolyology By Michael Elsohn Ross

A Pill Bug's Life by John Himmelman

Roly-Poly Pill Bugs by Molly Smith

Nature Closeup—Pill Bugs & Sow Bugs and Other Crustaceans by Elaine Pascoe

The Pill Bug Project: A Guide to Investigation by Robin Burnett

Pill Bugs Up Close (Minibeasts Up Close) by Greg Pyers

Pillbug (BugBooks) by Stephanie St. Pierre

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Roly Poly Adventures

You will need: Clear plastic box (or another box without crevices for the pill bugs to hide in), Magnatiles (or cardboard or anything else you can think of to use), Small containers for kids to collect pill bugs (apple sauce cups or paper cups), Dryer lint, Small amount of chopped apples, Small amount of chopped or shredded carrot, Pill bugs

Have children collect pill bugs. We found that pill bugs are more active and easily found in the morning. Otherwise, they can be found under things like bark or rocks.

Experiment #1: Darkness Versus Light

Use the [Magnatiles](#) or other material and create a space on one side of the box which has a removable roof and allows for some darkness for the pill bugs. On the other side, make an open enclosure. Place the pill bugs in the center of the two spaces.

- Have the children predict whether the pill bugs will prefer the dark or light space.
- Observe the pill bugs to see where they go.
- After several minutes, count how many pill bugs are in each space.

Experiment #2: How will the pill bugs handle a soft obstacle in their path?

- Place all the pill bugs on the light side of the box.

- Put the dryer lint in their path blocking their exit from that part of the space.
- Predict what they will do. Will they go over it? Under it? Try to squeeze around it?
- Observe their behavior. Were your predictions correct?

Experiment #3: Do pill bugs prefer apples or carrots?

- Place chopped apples on one side of the space and shredded carrots on the other.
- Predict which food the pill bugs will prefer (and for older children, predict why they may prefer one food over the other)
- Place the pill bugs on the other side of the space so that they need to walk to the carrots and apples
- Observe for a while. Give them several minutes to mosey over to their preferred food. Count how many pill bugs are on each type of food.

Finally, return the pill bugs near to where they were found - You can include the apples and carrots too.



Activities for Further Learning and Fun

Songs and Poems

I'm A Pill Bug Song (tune: Old Macdonald)

I'm a pill bug under a log
Living peacefully
I eat dead leaves and rotting fruit
Please watch out for me!
With a crunch, crunch, gulp
And a crunch, crunch, gulp
There's a leaf, there's some fruit
Everywhere I go, I eat
I'm a pill bug under a rock
Please watch out for me!



Snacks

Roly Poly Roll Ups

- 1 tube (11 ounces) refrigerated breadsticks
- 8 smoked sausage links or hot dogs
- 1/2 to 3/4 cup potato sticks



Preheat oven to 350°. Separate dough into strips. Unroll and cut eight strips in half widthwise; set remaining strips aside. Cut sausages in half widthwise. Wrap one piece of dough around each sausage, leaving the rounded end showing. Place seam side down on an ungreased baking sheet. Place reserved breadsticks on baking sheet. Bake 15-17 minutes or until golden brown. Remove bugs to a serving plate and cool 2 minutes. Insert potato sticks into baked dough to resemble legs and antennae.

Roly Poly Eats

After experimenting with what roly poly's eat, have some apple slices and carrots yourself!