Creatures in the Classroom

Including Insects and Small Animals in Your Preschool Gardening Curriculum

Notes from the Red Room:

After the children planted their spring seeds Nini looked at her pot and said wistfully “Now we have to wait.” She was right. If I wanted to keep the children’s interest in gardening, we would have to explore other related things while we waited. It seemed a natural extension to explore small garden animals. They are such an important part of a garden, and, having had so much positive exposure when I was a child, I find them fascinating. But I knew that I was taking a chance. The children had little exposure to nature and some already had negative attitudes about the critters I had in mind. Still, 3- and 4-year-olds tend to be open to new things. I hoped that such an exploratory mindset might spark their scientific interest in small wonder objects of these small wonders of nature.

When doing spring planting activities, what do you do while waiting for the plants to grow? This waiting time is a golden opportunity to explore another side of gardening—the creatures that make it all possible. Insects are the most common animal on our planet, and there are more types of them than every other animal combined (Davis & Keller 2009). Insects and other critters are crucial to gardening—aerating the soil, depositing nutrients, eating other animals that harm plants—but because of their often creepy reputation, they tend to be overlooked in the classroom in favor of gardening activities that focus on shiny green leaves and pretty flowers.

Yet plants and small garden animals go together, both in nature and in the classroom. The
National Research Council (NRC) states: “Students should be engaged in observing and caring for a wide range of organisms that can be housed in the classroom, with an emphasis on local plants and animals. . . . Students should assist in feeding and rearing animals to understand their needs, their behavior, and their life histories” (1990, 14). Acquiring firsthand experience through observing and/or handling small creatures helps children develop a healthy and curious attitude toward them, rather than one of fear or disgust. Watching yellow jackets sipping apple cider is much more educational than shooing them away. Learning that bees pollinate plants so that fruit is produced gives children a different insight into the importance of bees in their gardening efforts and in their lives.

Because insects often go through distinct stages, bringing them and other small creatures into the classroom provides an excellent opportunity for observing the stages of development in their life cycle. There is nothing more amazing than watching a caterpillar spinning a cocoon and emerging later as a butterfly! Such experiences allow children to take on the role of biologist at their level of cognitive development.

Connecting garden creatures to early childhood science education

A gardening curriculum that includes small animals as a focus encourages scientific attitudes, process skills, and content knowledge as a natural part of investigation.

**Scientific attitudes**

Caring for insects and small garden animals in the classroom allows children to experience the wonder and curiosity of these important creatures. Louv (2008) discusses how most young children have a “bug period,” and that hands-on experience is crucial at this time if they are to develop naturalistic mindsets. A naturalistic mindset is having an active interest in, and a strong desire to learn about, nature and the natural world—in particular, about the scientific fields of botany (the study of plant life) and zoology (the study of animal life). An insects-and-small-garden-animals curriculum helps children develop an understanding, appreciation of, and enthusiasm for the small creatures that are so abundant in the garden, as well as build a sense of responsibility and respect for all living things.

**Scientific process skills**

Exposure to insects and small garden animals promotes focused observation and data collection. In addition, children can practice using the tools needed to gather and convey new discoveries. They can use the language of measurement; compare, contrast, and classify; and engage in the charting and graphing of eating and growth patterns as they interact with and care for their critters.

**Scientific content knowledge**

Through hands-on exploration and observation, children can begin to interpret what distinguishes living from nonliving things. Through caring for classroom critters and role-playing, they can gain knowledge of what different living things need to survive and learn about animal characteristics and behavior. Exploring insects and small garden creatures in the classroom addresses National Science Education Standards (NRC 1996) by allowing children to develop a concrete understanding of the characteristics of common organisms, gain knowledge about life cycles, and acquire insight into how animals and the environment work as a system.

**Mini-beast basics**

**Go local**

When choosing garden animals to study in your classroom, go with what is common for your area. This way, the observations that start in the classroom can carry over to what the children...
see on the playground and in the neighborhood. Talk with local gardeners or conduct an Internet search of “[insert your state] local invertebrates” to find small animals that are native to your area. You may want to reach out to people involved in community gardens in your neighborhood. Community gardeners, whether professional or not, tend to be enthusiastic and are usually willing to invite classes to their gardens to share their experiences with local plants and animals. In addition, seek out botanical gardens in your area. They often have educational outreach programs to provide teachers with resources and information on all aspects of gardens for your region, including the small creatures that inhabit them.

Ants may be the first creatures that come to mind. Although ants are very interesting to study, keep those explorations on the playground unless you use a sealed ant habitat. Because of their small size, ants don’t afford a real chance for hands-on exploration, and indoors they can be hard to contain—and even harder to find when they are loose! Crickets, ladybugs, mealworms, snails, earthworms, and caterpillars allow for better scientific exploration, are relatively easy to care for, and are available cheaply at pet stores or in the backyard.

Take care

It is important that you and the children provide what will be needed for the small animals to survive and thrive—food, water, and any environmental specifics. Three useful websites for fact sheets and other resources about insect and small animal care are www.pet-bugs.com, www.earthlife.net/insects/carelist.html, and www.amentsoc.org/insects/caresheets/. And it is important to account for what happens to the small animals at the end of the school year. (For example, you may plan to release the classroom crickets into a nearby park, but introducing non-native insects to that environment could upset the balance of nature there.)

Vivariums are indoor enclosures that simulate the natural environments of small animals. Many garden animals can live in vivariums made from common household materials. Snails will thrive in a clear plastic bucket or glass jar, as long as the container has air holes on the lid and is filled with damp soil and some decaying debris, such as twigs, dead leaves, and fruit rinds. Similarly, crickets will do well in a clear, aerated bucket or jar filled with sand, twigs, pebbles, and grass. Crickets also love to hide, so challenge your children to create hiding places. Crickets like fruits with pulp—and they love fish food! Do a search of “[your animal of interest] habitat” at www.ehow.com or see the resources at the end of the article for more ideas on creating safe homes for common garden critters.

Don’t BUG me

The term bug is often used to name any unidentified garden insect; however, it is correctly used for only one class of insect: Heteroptera (also called true bugs). True bugs include bedbugs, stinkbugs, water striders, and several others. For more information on Heteroptera, visit www.myrmecos.net/insects/heteroptera.html. Lightning bugs and ladybugs are insects but not bugs. They are actually different types of beetles. Spiders are not insects at all; they are arachnids, so teachers should definitely not refer to them as bugs or insects.

Being scientifically correct is important, but using the name bugs is extremely common, and it is important not to be hypercritical of children or parents who use the term. In fact, many books incorrectly use bugs and insects inter-
changeably (even some of those listed at the end of this article!). In the classroom, rather than incorrectly referring to unidentified animals the children encounter, use the terms small animals, small creatures, or mini-beasts when discussing them. To expand vocabulary, try to use the specific name of the insect or small animal you are observing whenever possible. And be sure to avoid wording that has negative connotations, such as creepy crawlies.

Consider using the distinction between bugs and insects as an opportunity to start an exploration with children. Bugs Are Insects, by Anne F. Rockwell, is a terrific nonfiction science picture book. It introduces basic concepts for differentiating insects, bugs, spiders, and other kinds of small creatures. The artwork is collage, making the book colorful and interesting.

Children can explore and develop questions about insects that foster their curiosity and diminish fear. Even checking your response to a spider that wandered into the classroom can make a difference in affecting children’s inquiry attitude. Instead of “Ew, ew, kill it!” you could respond with “What is it doing? What do you notice about it? Let’s take it out where it belongs.” It would take about the same amount of time to allow the children to capture the spider in a cup and release it outside as it would to kill it. By making this simple choice, the lifelong attitudes the children develop—and their later interest in and study of this important part of our natural world—could be vastly different.

Think inclusively

Because insects and small animals are so different from us, people develop strong attitudes about them very early in life—either as amazing and exciting or as creepy and crawly. You may fall into the latter category. So, if you are not ready for real insects and critters in the classroom, you can still add insects and small animals to the gardening curriculum through nonfiction and picture book stories, posters, and models. Adding plastic model insects, high-quality soil, and small garden tools to the sensory table will offer children hours of interaction and gardening play that acknowledges the role of insects in the garden.

Encourage children to investigate small creatures on the playground by putting out a dish of sugar water and offering magnifying glasses. Children can explore and develop questions about insects that foster their curios-

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Notes from the Red Room:

I brought snails into the classroom. The children were fascinated by them, and they enjoyed watching the snails move across the paper. One day, a child asked, "Why do snails leave trails?" This led to a discussion about various small animals and their unique characteristics.

Books for teachers


Books for children

The Best Book of Bugs, by Claire Llewellyn (2005). This book is filled with eye-catching illustrations and basic facts on common insects—such as spiders, snails, and worms.

Big Book of Bugs, by Theresa Greenaway (2000). This book is a colorful, large-size guide to insects, perfect for introducing young children to the world of bugs.

Bug Art. (Rookie Reader Series), by Patricia McKissack and Frederick McKissack (1988). This book offers creative activities related to insects and encourages children to express their interest through art.

To learn more, check out these resources!

Notes from the Red Room:

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References


Websites

The Adventures of Herman the Worm. http://urbanext.illinois.edu/worms. This resource offers fun facts about worms, including games and activities.


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