

## A Fancy for Ants

Written by Janet Goodman, BT Contributor  
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### Old-fashioned and fancy new ant farms offer a window into their world



The International Space Station has had interesting payloads of scientific experiments over the years. For example, the 2014 NASA study “Ants in Space” was just the latest of several similar ISS space studies looking at ant behavior in microgravity conditions.

As impressive as that sounds, you don’t have to be an astronaut to study the six-legged creatures up close. Go outside to a dirt pile to observe them -- or you can set up the next best thing to a NASA experiment right in your kid’s bedroom with an ant habitat.

Formally called a formicarium (plural: formicaria), this habitat is essentially an ants’ nest that has been compressed between twin panes of plastic or glass, giving us views of the terrestrial insects’ tunneling behavior.

Invented by French scientist Charles Janet, they were introduced at the 1900 Exposition Universelle in Paris. By 1931, Dartmouth College engineering professor Frank Austin patented the first commercial “scenic insect cage.” Milton Levine created his Ant Farm version in 1956, and the rest is Uncle Milton’s Toys history.

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Uncle Milton Inc. became the first company to mass-produce and sell formicaria as educational toys for children ages six and older. First appearing in the back of comic books as mail-order items, Ant Farm products were advertised during after-school TV programs, targeting the baby boom children's toy market. Millions of sand-based habitat kits were sold in the 1950s and 1960s; these included a plastic window box, a bag of sand and a container of live ants. Today ants are ordered separately through third-party ant collectors.

Sand-based Ant Farm environments have barely changed over the years. Measuring approximately nine inches in height by slightly over a foot wide and just an inch and a half deep, they weigh about two pounds. The plastic viewing box reveals a cross section of ant tunnels once the insects build their nest; above the colony is a flat green silhouette of a cityscape or barnyard.

The company's instruction manual recommends red harvester ants for these habitats, and all collected from the same colony to ensure that they work together. About 20 to 30 ants are enough for one farm, and because only queens reproduce, they're protected by law and never shipped; the other ants can't reproduce, preventing colony overpopulation.

Mixing species or colonies leads to fighting and escapes. Air holes are sized specifically for quarter-inch harvester ants; smaller species scamper through.

Uncle Milton suggests two to three drops of bottled spring water every other day to keep the ants hydrated and to prevent sand tunnels from collapse. One bread crumb a week is enough food for the colony; habitats should be kept still and out of direct sunlight.

Even though there are competing manufacturers of formicaria, most people refer to them as Ant Farms, a protected trademarked name commonly used as a generic term.

In recent years, NASA introduced gel-based ant habitats for its microgravity space projects. These have since caught on in the commercial educational toy market. Instead of sand, ants dig tunnels in specially formulated nutritional agar-gel substances that support the colony with food and water. These translucent gel habitats are lower maintenance than sand farms and can be illuminated with LED lights at the base to create a cool, colorful glow.

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Ants live just one to three months and will need to be replaced, as will the sand; gel kits come already filled with substrate. Since the gel cannot be replaced, an entire new farm will need to be purchased. Good news is that habitats cost only \$20 to \$30 at retailers like Toys R Us. But the ants themselves aren't toys -- they're live animals that require proper care.

Miami Country Day School science teacher John Barbick works with children from age three to fourth grade, and has ups and downs with ants. "I teach the first-grade children about ants -- their behavior, the body parts of insects, and general information about them," he says.

In the school's Abess Center for Environmental Studies lab, he has 22 different types of animals, from tortoises and rats to chameleons. "I had a few ant farms during my years of teaching in the lab. The ants that came with the kits were fine, but I didn't want to have the farm inside the lab for fear of ants escaping, so I put it in our bird sanctuary. After a few days, another species of ants invaded and killed them all."

Barbick says of his first-graders: "They're curious about many animals and enjoyed a few experiments we did with ants." They discovered why ants march in a line and how they can tell their family of ants from others.

"My goal," he says, "is to make children aware of their environment and respect all creatures large and small."

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