



PolymerCAFÉ™
Magazine presents:

ANTVIRONMENT: CREATING A LIVING HABITAT FOR ANTS

by Garie Sim

I found a way to combine art and clay with science—my favorite subjects—in a polymer clay/recycling project. For years, I've been fascinated with ants and the way they live in the environment. When I was a student, I built an underwater ant habitat in an aquarium by using Plasticine. I divided the underwater habitat into compartments which were interconnected, and I allocated spaces for the ants to live in, storage of foods and growth of seaweeds for the production of oxygen through photosynthesis.

I am very excited to create an ant farm using polymer clay. Since most of my polymer clay creations have lasted for more than twenty years, it proved to be a suitable material for this project.

I named my project ANTVIRONMENT, and it is an ant farm made using polymer clay and recycled plastic cake or chocolate boxes. I've developed three types of Antvironments, and they are: a) the cavenvironment (demonstrated in this article), b) the contemvironment and c) the naturavenvironment.



TOOLS

- Cutter
- Brass Brush
- Metal Clay Tool
- Wooden clay sculpting tool
- Pen
- Craft Knife
- Scissors

MATERIALS

- Plastic boxes (see photo, below left)
- Cardboard
- Glitter
- Superglue
- Miniature pebbles, sands and soils (below, right)
- Polymer Clay scraps or your choice of color, about 2 packs (4oz.)

ANT FACTOID: Ants have been living on the Earth for more than 100 million years and can lift weights that are twenty times their own body weight. The average life expectancy of an ant is 45 to 60 days. Our results with this project: 90% of the ants lived up to about 70 days with proper care and water, (shows that Polymer clay isn't toxic to ants).



Recycled boxes, above left, and pebbles, gravel, sand, and soil from the ant's natural environment, above right.

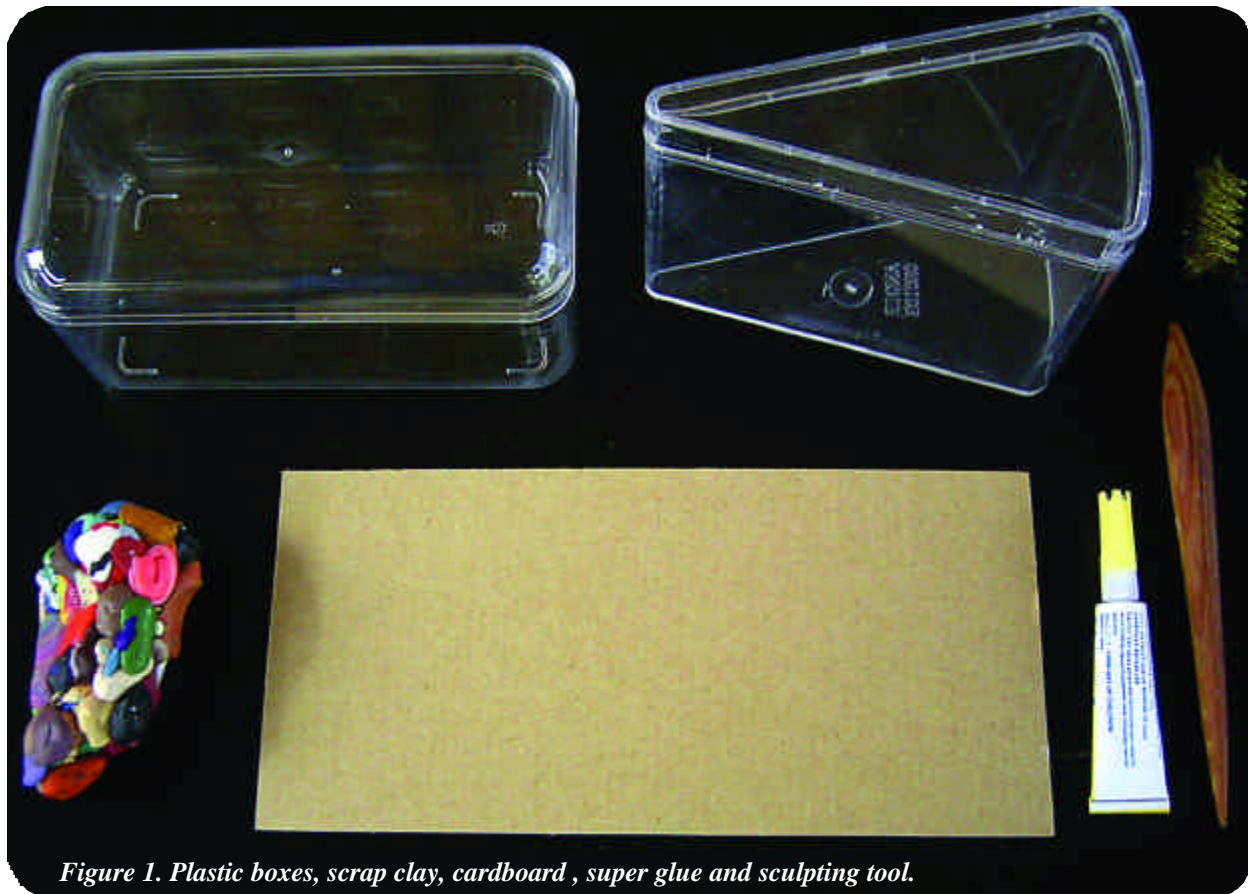


Figure 1. Plastic boxes, scrap clay, cardboard , super glue and sculpting tool.

INSTRUCTIONS

OPTION 1: CAVEENVIRONMENT

Step 1. Gather the items you'll need for the Antenvironment (Fig. 1): an empty cake box, a piece of cardboard, and 2 packs (4 oz.) worth of polymer clay in your choice of color or scraps. You can also use Premo Raw Sienna, Burnt Umber and little bit of Black to create an earth color blend. The ants can be collected now or after the construction is finished.

Step 2. Use the cake box cover as a template to mark the triangular pattern on the cardboard (Fig. 2).

Step 3. Cut out the triangular pattern slightly smaller than the marked pattern. Test to make sure that the cut out pattern fits the main box (Fig. 3).

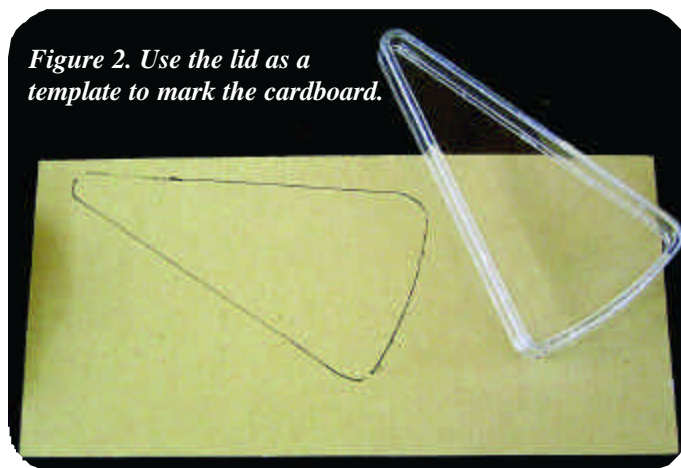


Figure 2. Use the lid as a template to mark the cardboard.



Ants in their temporary home, waiting for new accommodations.

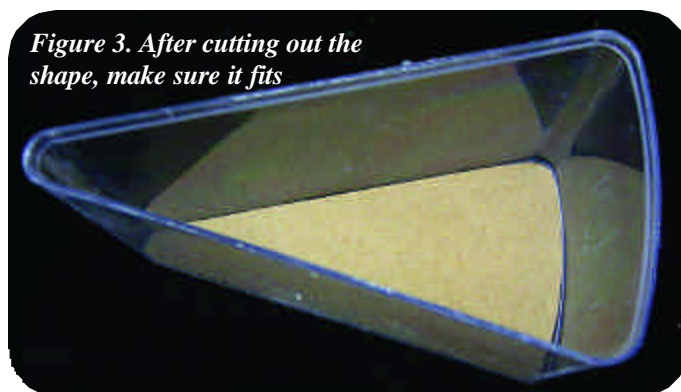


Figure 3. After cutting out the shape, make sure it fits



Figure 4.
Flatten the clay.

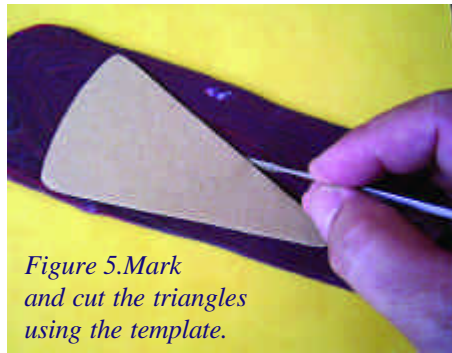


Figure 5.
Mark and cut the triangles using the template.



Figure 6.
Prepare the two triangles.



Figure 7.
Stick small lumps of clay on the triangle.



Figure 8.
Texture the surface with the wire brush.



Figure 9.
Add larger lumps of clay to other triangle .



Figure 10.
Form columns and stalactites



Figure 11.
Make an opening at the side.

Step 4. Flatten the polymer clay with the pasta grinder or wooden roller to approximately 2.5mm thick (Fig. 4).

Step 5. Use the cardboard to cut out the flattened polymer clay (Fig. 5).

Step 6. Prepare two of the triangular polymer clay pattern pieces (Fig. 6).

Step 7. Stick small lumps of clay on one of the triangular polymer clay pieces (Fig. 7).

Step 8. Texture the surface of the triangular polymer clay with a brass or metal brush (Fig. 8).

Step 9. Stick larger lumps of clay on the other polymer clay triangle (Fig. 9). Pinch and twist them to form columns and stalactites (Fig. 10). This will be the base of the piece.

Step 10. Texture the miniature columns and stalactites, and cut an opening at the side (Fig. 11). This piece is for the top side of the cavern.

Student Arthur Tan working on Antvironment.



Figure 12. Add holes.



Figure 14. Glue pebbles into place.



Figure 16. Check the fit of the baked pieces in the box.

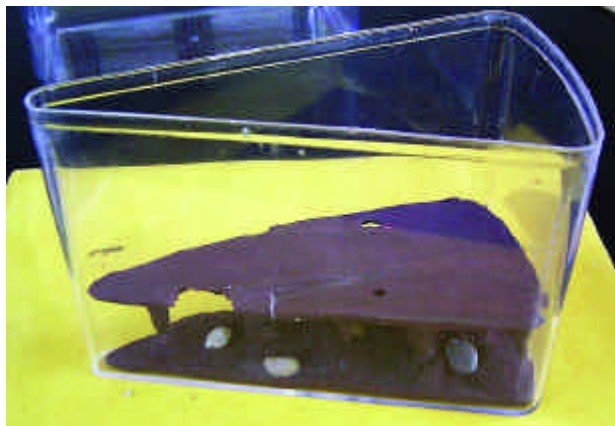


Figure 13. Place the pieces together to mark the unbaked base with the columns.



Figure 15. Assemble and bake.



Figure 17. Create a breach on the top layer and glue.



Step 11. Poke two holes in the top wedge (Fig. 12).
Step 12. Bake in the convection oven for 30 min. at 130°C (approx. 275°F).
Step 13. Remove the baked top wedge from the oven and allow it to cool. Align both triangular polymer clay pieces (Fig. 13) and texture the sides of the still unbaked base wedge with a metal tool. Separate the pieces again.
Step 14. Press the pebbles to the unbaked triangular base, taking care not to put them where the columns will go. Glue the pebbles into position (Fig. 14). Apply superglue to the column impressions. Fix both layers together as shown in Fig. 15.
Step 15. Bake the assemblage in the oven for 30 minutes. Allow to cool after baking. Test to make sure the assembled pieces fit into the box, trim the side if necessary. Remove from box, next we'll add the finishing touches.

Step 16. Between the space of the two triangular, create a breach next to the opening (Fig. 17). Glue the unbaked clay breach with superglue. Create the cave entrance with a thin piece of polymer clay.
Step 17. Embellish with pebbles and glitters to create rocks to mimic crystals, diamonds and minerals, adding realism (Fig. 18).

Figure 18. Embellish



Figure 19. Add sinkholes over the hole you made earlier.



Figure 20. Check for fit again.



Figure 22. Begin filling with dirt



Figure 21. Drill small air holes into the lid

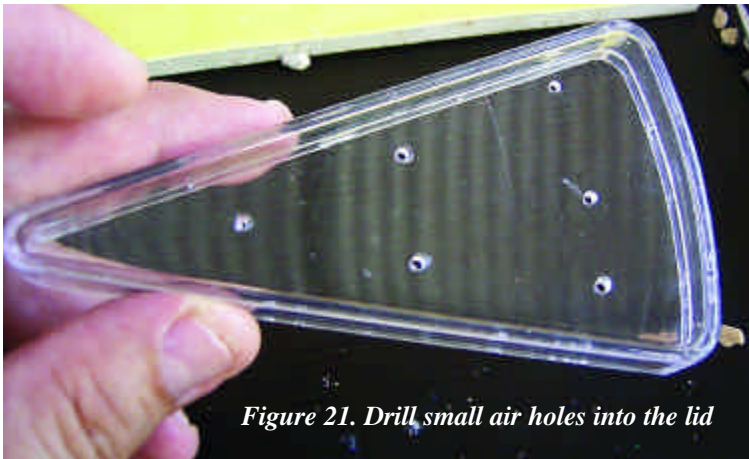


Figure 23. Add soil up to about 1 1/2 inches from top.

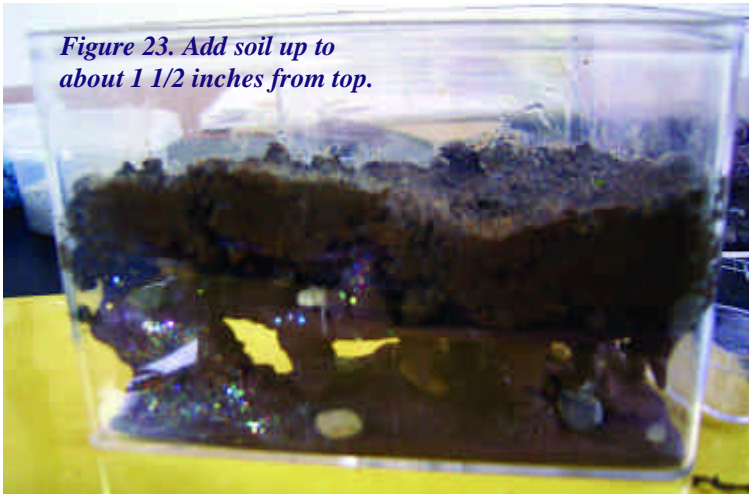


Figure 24. Add plants.



Figure 25. View from above of the plant placement.



Step 18. Apply glue to securely attach the polymer clay cave entrance to the triangular base top. Create sink holes (Fig. 19) over the holes you made in Step 11.

Step 19. Bake the completed cavern in the oven for 30 min. Let it cool and test again to be sure it fits well into the box (Fig. 20).

Step 20. Provide ventilation holes for the top cover using a miniature hand drill or Dremel tool (Fig. 21).

Step 21. Begin filling the box with soil (Fig. 22) and level it, allowing 1 1/2" space between the cover and the top of the soil to prevent the ants from escaping (Fig. 23).

Step 22. Begin planting miniature moss into the top soil, there are a few types of miniature garden moss that you can use for your landscaping (Figs. 24 & 25).

Step 23. Add more gravel and pebbles, fill the spaces in between with sand (Fig. 26). Now the Antvirement is complete.

Step 24. Add a spritz of moisture to the finished Antvirement landscaping. This helps to set and firm up the soil, sand and pebbles.

Step 25. Introduce the ants into the antvirement. In our ant habitat, after 2 days the ants had tunnel into the cavern (Figs. 27-29).

Figure 26. Place sand and more pebbles on the surface.



Figure 27. The finished Antvirement with it's new occupants.



Figure 28. Ants in their recycled environment.



Figure 29. View from above.

THINGS YOU'LL NEED TO COLLECT FROM NATURE FOR THE ANTIVIRONMENT

- Ants ■ Miniature moss
- Soil collected from the Ant's natural environment



Boys on the ant and plant hunting and gathering expedition.



(Left) Arthur Tan working on his Antvironment.(right) the finished one.



CAVEVIRONMENT: DIAGRAM OF PARTS



ANTVIRONMENT
RECYCLING CAKE CONTAINER WITH
POLYMER CLAY INTO AN ANT HABITAT

OPTION 2: CONTEMVIRONMENT

See Figures this page.

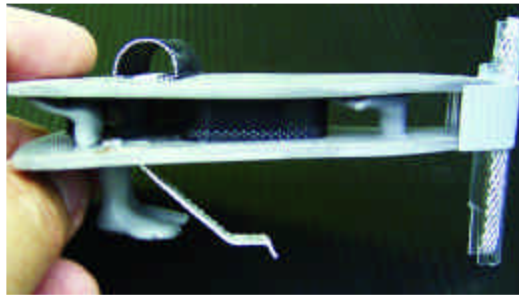
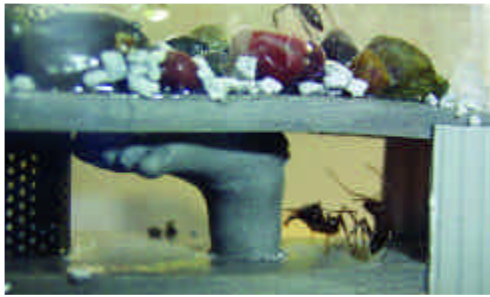
This is a whimsical and unusual contemporary ANTVIRONMENT, with an artificial environment above, a connecting tube, easy access to second base level and third base level, ants climbs up and down on the wire mesh in the tube.

The second level consists of a curved shape, maze-like space for the ants. We found after testing with the first prototype that the perforated black aluminum partition is a popular refuge for most of the ants. The occupants are also able to access this level through two perforated natural aluminum staircase ramps. The ceiling and floor level are support by pairs of hands and feet that act as columns.

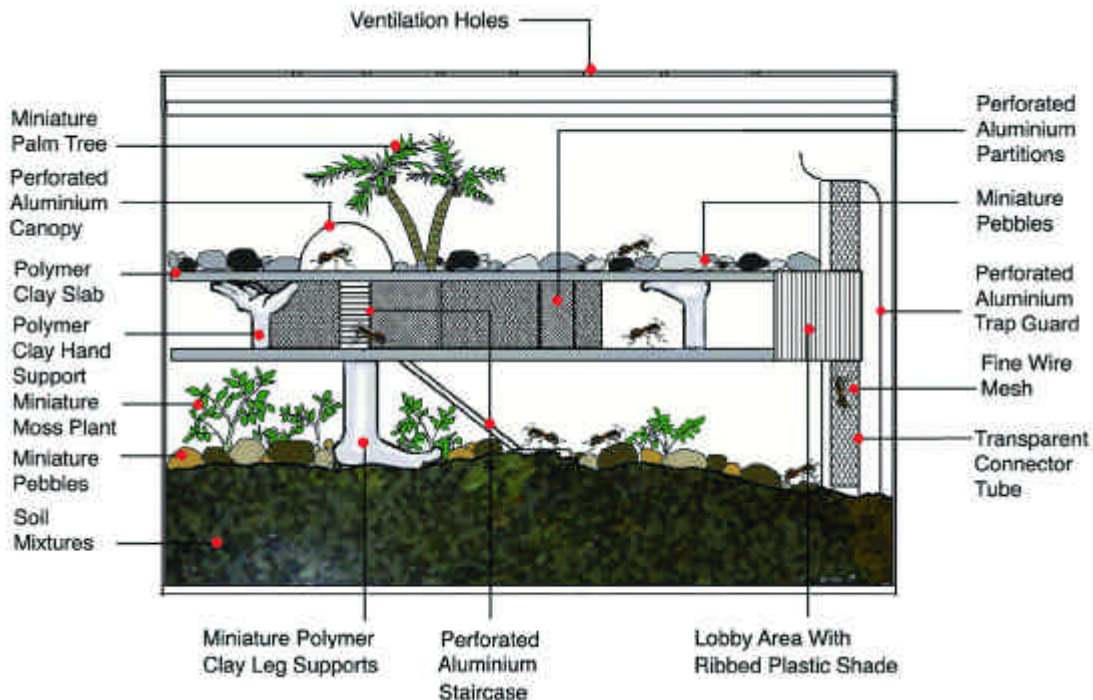
As for the third base level, it is filled with a layer of mixed soil collected from the ants natural environment. It is landscaped with miniature moss, pebbles and sand. The overall supports are a pair of feet and the transparent connecting tube. This is also the second most popular area for the ants.



*Various views of the
Contemvirement
See diagram of parts, below.*



CONTEMVIRONMENT: DIAGRAM OF PARTS

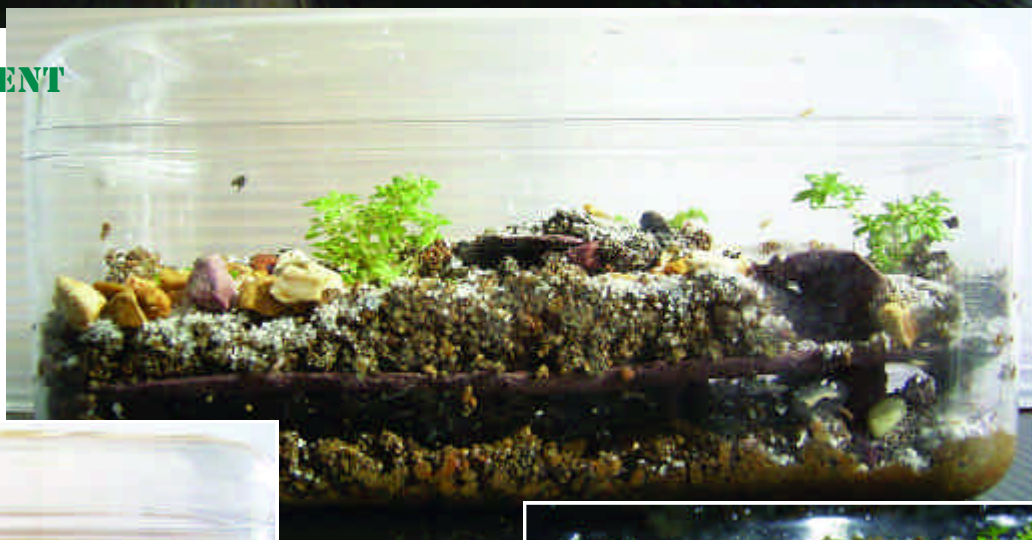




Comparison of the Contemvironment (left) with the Naturavironment (see details below) at right.

OPTION 3: NATURAVIRONNMENT

This is the ANTVIRONNMENT created from a Ferrero Rocher chocolate box. It is a more natural environment for the ants, with plenty of underground space and 3 separate entrances. We observed that when putting the ants into the NATURAVIRONNMENT, ants found easy access almost immediately, and took refuge underground. See photos at right.



*Various views of Naturavironment
At left, before dirt and sand added, above, the finished version, and right, aerial view after completion.*



About the Artist: Garie Sim

An artist, designer and teacher from Singapore, Garie is a self-taught clayman and has been making models from Plasticine since he was a child. Since his discovery of the versatility of Fimo polymer clay in the early 1980s, he has created lots of clay miniatures for his children.

Garie has also tested the clay in water and combined it with other materials like film spool, ping-pong balls etc. to create toys, gifts and crafts. He also started the controversial technique of microwaving polymer clay.

During the past twenty-four years, Garie's diversity in creating with clay has been featured in newspapers and magazines and on news and kids' programs on television, both in Singapore as well as inter-

nationally. Many of his original creations with polymer clay are unique, unusual, whimsical and imaginative. Together with his family, Garie has conducted play clay and drawing classes in Singapore for more than eight years. Since polymer clay is not commonly used in local schools or found in local art retail outlets, Garie has also become a major supplier for polymer clay, tools and accessories to cater to the needs of his students. In addition, he is also actively promoting polymer clay as a very versatile material for artistic creation by conducting demonstrations in schools, clay parties and other similar events in Singapore. The play clay classes he conducts are for children, including those with learning disorders such as dyslexia, autism, attention deficit disorder or hyperactivity. These classes have successfully groomed many young and creative artists.

**Visit Garie's website www.garieinternational.com.sg
or contact him via e-mail at: garie@starhub.net.sg**