Shrink-Film Gaming Minis

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TOOLS:
- Computer (1)
- Cookie sheet (1)
- Oven (1)
- Paint pen (1)
- Paper cutter (1) or hobby knife
- Printer (1)
- Scissors (1)

PARTS:
- Inkjet ink (1)
- Cardboard (1)
- Shrink film (1)
- Binder clip (1)

SUMMARY

Even as we approach the cultural apocalypse of ubiquitous, fully immersive, photo-real multiplayer video game environments, there are still those of us who like to play board or tabletop games. The communal wargaming experience, for instance, is very different from playing a networked MMORPG or turn-based strategy game. Whereas WarCraft or Xbox Live is kind of like hanging out with your buds watching TV, actually getting together and playing a board game is more like a real party. There's usually music and snacks and beverages and lots of gregarious BS-ing of a type that just isn't as practical over a network line. Manipulating the physical game pieces is also satisfying in a way that virtual objects have yet to achieve, and probably won't for some time to come.
A lot of folks who are into tabletop gaming eventually end up making their own pieces, for one reason or another. They may be making a custom army to compete in a wargame with established rules, or they may be making up their own game for which no commercial pieces are available. For these folks there's an array of techniques available. The simplest, as in wargaming days of yore, is to use illustrated paper or cardboard "chits" that lay flat on the gaming surface. A step up from that involves buying or making bases so your cardboard heroes can stand upright, which not only makes them look better but makes them much easier to manipulate. If the cardboard approach is too wimpy for you, you can always purchase commercial 3D miniature figures and paint and/or customize them to suit your taste.

Polyolefin shrink film presents an intermediate approach to original miniature design, midway between cheap paper or cardboard cutouts and fully dimensional figurines. Shrinky-dinks are much more durable than card stock, and unlike store-bought figurines, they are completely customizable. Best of all, you can make all your artistic mistakes at the software level, where they're easy to fix.
Step 1 — Design your minis.

- The best way to determine the expected shrinkage of your film is by experiment. Print a square of known dimension, cut it out, shrink it, and measure the new size. The ratio of the "after" dimensions to the "before" dimensions gives the expected shrink percentage. Every film I've ever seen also includes an approximate shrink ratio in the directions, and if you're not an accuracy freak it's probably safe to assume it's correct. The clear film I used shrinks by about 50%, meaning that the designs as printed need to be about twice as big, in each dimension, as the desired miniature size.

- Note that if you intend to use bases you need to be sure to leave an empty "tab" at the bottom of each image so the base can be attached without obscuring the art. If you're using binder-clip bases (see below), I recommend the small (3/4") size. These have a real "footprint" of 3/4" x 1/2", so scaling up for 50% shrink film gives a 1.5" x 1" pre-shrink area to allow for during the design of each piece.

- If you don't want to design your own minis, or you just want to experiment with the technique, I've put together a set of markers for the deluxe edition of Steve Jackson's famously awesome future war-game, OGRE. A PDF of my OGRE marker designs, ready to print onto five 8.5" x 11" sheets of 50% shrink film, is attached to this project.
Step 2 — Print onto shrink film.

- Shrinking causes the color saturation of your images to increase, so they will need to be lightened before printing to keep them from ending up too dark. I use my HP printer settings dialog to do this.

- Your equipment may vary, but most printer drivers include a color management panel that will at least let you tweak "brightness," which is enough. Again, the best way to be sure is to run an experiment. Using the feature set of my HP C4180, I turn the brightness of my image all the way up to "brightest", the saturation all the way down to "least saturated," and the color tone all the way up to "warmest." These settings give good results for my printer, with these images.

- I recommend loading only one sheet of film into the printer at a time to avoid feeding problems that may be caused by friction between sheets in a stack.
**Step 3 — Cut out the pieces.**

- You can make the profiles of your minis as complex or simple as you like. Keep in mind you're probably going to have to cut out a lot of them, and carefully cutting complex profiles means a lot of time and fine work with scissors or a pen knife.

- My OGRE minis are mostly rectangular, and I was able to cut them out very quickly using a swing-arm paper cutter. I made exceptions for the OGREs themselves, giving them semicircular profiles that I cut with scissors, so that they would stand out on the board.
Step 4 — Shrink the pieces.

- Refer to the directions on your shrink film for appropriate heating temperatures.
- Mine were shrunk in an oven preheated to 300° F, and it took approximately ten minutes per batch.
- Observe the pieces as they shrink (that's half the fun of it, anyway). They will curl up and then reflatten. Sometimes they will not flatten completely, in which case you can compress them with the back of a spatula while they're still hot without damaging the image or the surface of the film.
- Let the pieces cool completely to room temperature before attempting to handle them.
Step 5 — Finish the edges (optional).

- I find that a black edge on the pieces looks better than a bare one.
- A paint pen is the best tool for applying said edge. Sharpie works, too, but it requires a couple of coats to get the same coverage.

Step 6 — Add bases (optional).

- Bases for shrink film minis (or any flat game mini) can be improvised readily from small binder clips. The photo sequence illustrates the process.
- Clamp the clip to the base of the piece as shown.
- Remove the wire handles from both sides of the clip by compressing them. The black spring remains in place on the mini, forming a functional, discreet, good-looking base.

I chose clear print-on film in the hope that it would be sufficiently transparent to provide easy viewing of the game board surface in the background of the design. Turns out whatever coating they apply to make the plastic take inkjet ink tends to opaque the film, and after it's shrunk the effect is even stronger. Basically the "clear" film produces a dink with a translucent white
background. Next time I will use regular opaque white film and include backgrounds in my designs.

If your printer is capable of sufficiently accurate registration, it should be possible to print mirror images on either side of the film such that the resulting markers are double-sided. I don't know how well the ink on the reverse side will stand up to being face-down when shrinking, but my instinct is it shouldn't matter too much. You could put the same design on each side for aesthetics and/or convenience, or you could put a different design on the reverse, perhaps an "injured" or "battle-damaged" version of the obverse unit.