

Scissors

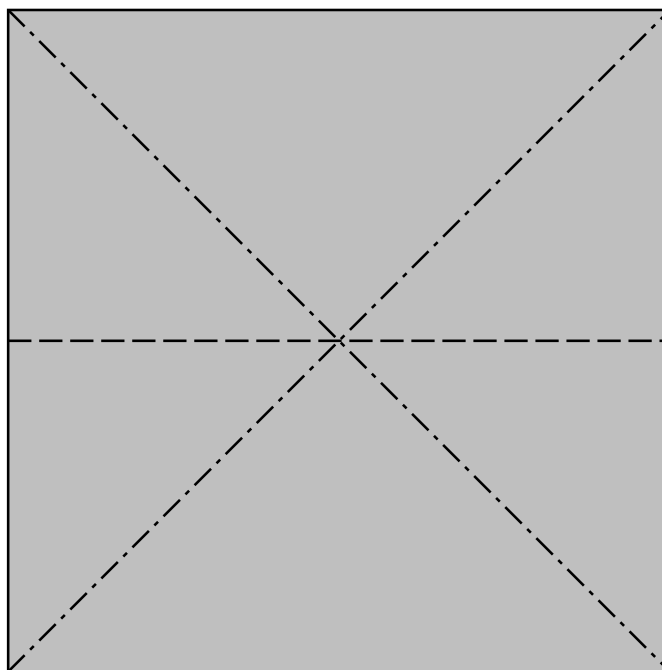
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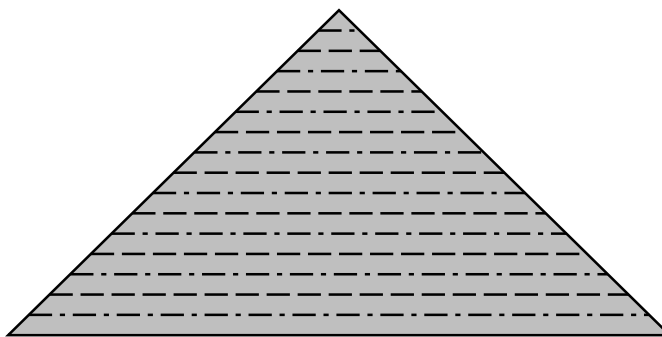
I recently bought a copy of Jeremy Shafer's "Origami to Astonish and Amuse", and one of the models, the Star of David, listed a pair of scissors as "something else to try" — so I did. Here's the design I came up with.

Begin with square paper, fairly large; I used 350-mm paper for my first pair of scissors. The color isn't too important, and you may well just use single-colored or white paper.

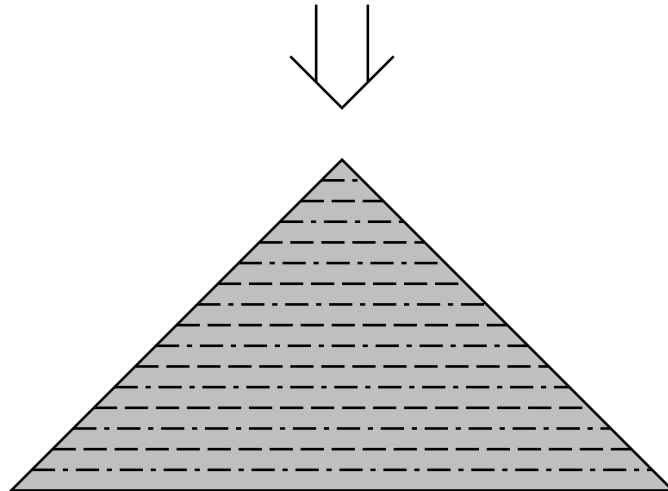
Step 1: make a waterbomb base



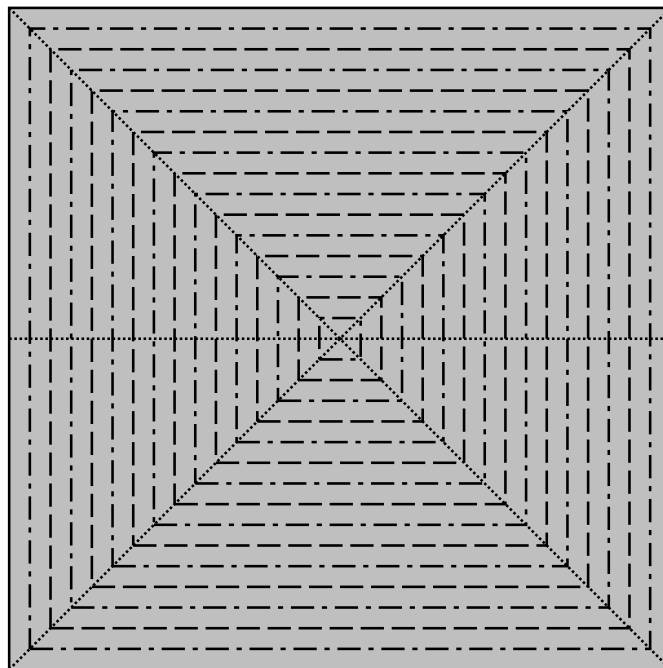
Step 2: pleat the waterbomb. I'm drawing the pictures here for divisions into 16ths, which is what I used; 8ths might also work. (In the previous version of these instructions, I *lied* about this: I said, mis-remembering, that I had divided into 32nds. Mea culpa!



Step 3: sink all the pleats, all the way down. This step is actually easier if you make all folds go both ways; so do the pleat in the previous step, then open it up and reverse all the pleat-folds.



The sinking is actually accomplished much more easily (well, I thought so anyway) by unfolding all the way back to the original sheet, then going around the outside, folding down along the outermost crease, then folding up along the next-inner crease, then folding down along the next-next-inner crease, and so on. Here's the crease pattern for that:



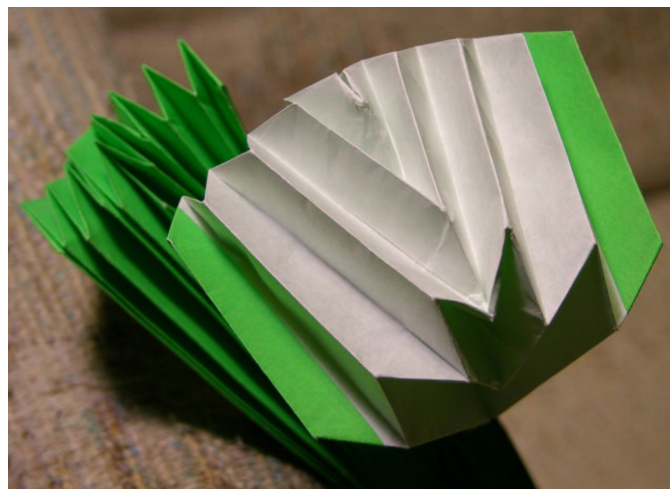
The original waterbomb folds, which I've just shown as dotted lines, will be alternating short segments of mountain-folds and valley-folds — from the outside in, they start as mountain-folds for the diagonals, and as valley-folds for the horizontal. But it just gets too confusing visually if I try to draw that.

Step 4: take a break, have a drink! Press the ‘X’ shape that resulted from the above under a book for an hour or two, to give the paper time to get used to its new shape. Then, fold the front leg of the ‘X’ as shown with the darker dotted lines, and the back leg as shown with the lighter dotted lines. Make all folds in both directions — ie, as mountain-folds, then open and reverse to make a valley-fold; then open everything back up to the ‘X’:



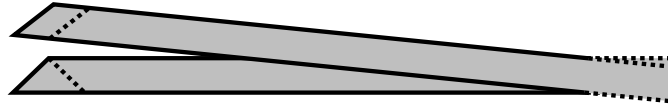
Step 5: ookay, the next step is pretty easy to do and to describe, but quite beyond my ability to diagram — so I’m going to take a picture and glue that in here instead. What you want to do now is to reverse (almost) all the pleats in the short segments of the legs of the ‘X’ between the folds that you just made (the exceptions are two of the outermost layers; if you made this with colored paper, leave the appropriate layers un-reversed, so that you don’t have a white segment on one loop of the scissors’ handle). You could approach this inversion in two separate steps (per leg), but it’s *much* easier to do it all in one go — the internal points (the original diagonal of the waterbomb base) are messy to deal with, and by doing it all in one go you can avoid dealing with most of them. You end up only having to invert those points that really do end up inverted.

Start by spreading the pleats of the leg well apart, then invert the segments of fold one by one, from the outside in. As you do that, the leg will automatically start to bend around and form the loop. If the loop doesn’t quite close, pull it into shape and adjust the folds you made in step 4 (I had to do this with the scissors I made). The internal points I mentioned above will be a bit tricky to invert, but a bit of gentle persuasion with a bone-folder will do the trick — the inversion is such that the paper can lie flat without tension after it’s done, so there will only need to be the barest minimum of brute force...



Here’s the picture. This is actually of the finished scissors, but I spread apart the pleats on one handle. This is looking down onto the middle segment of the handle. Note the outermost layers were not inverted, as per above, to keep these segments of the handle green. Note that you want to bring one loop upward and one downward (in the plane of these diagrams).

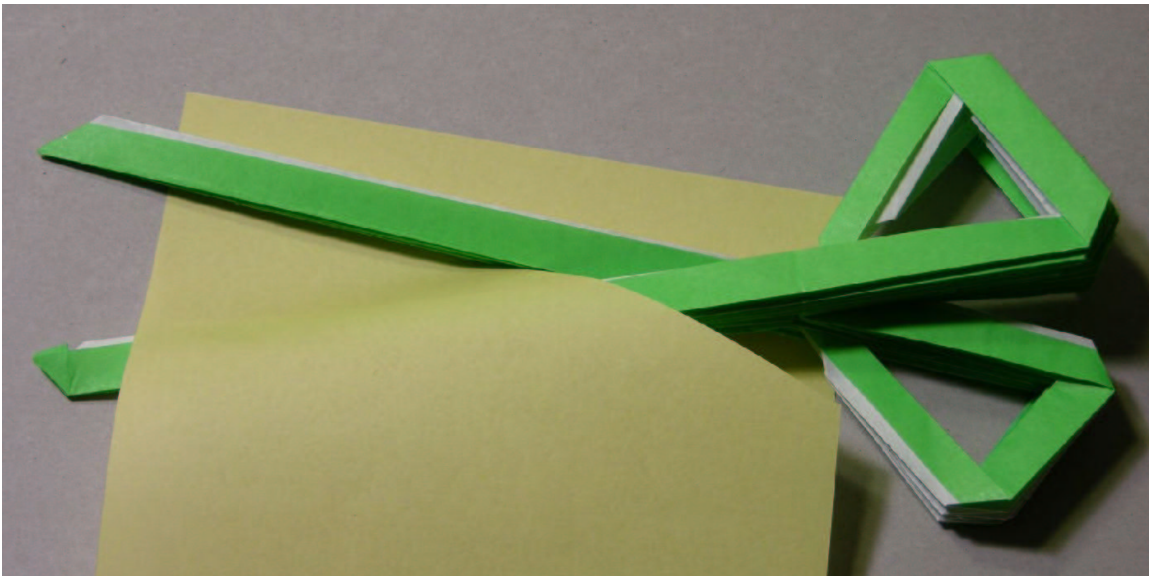
Step 6: the points of the scissors are both beveled the same way, and real scissors don't look like that; so fold back the points just a bit, and shape them so that they look right:



Make sure you pick the right direction to fold each point! This will depend on which loop you folded upward and which you folded downward in the previous step... you don't want to make anti-points here!

Step 7: I've sort of already implied it with the previous diagram and instructions, but I'll make it explicit: open and close the scissors to varying degrees, just like real scissors, and at each position fold down the paper at the fulcrum point of the scissors. The idea is to get it good and soft at that fulcrum point, so that you can actually open and close the scissors while holding them fairly naturally in your hand.

And here's a picture of the finished scissors: truly, they are awesomely powerful vorpal shears!



Step 8: go forth and cut things! I'm quite sure you'll be able to do terrific damage to such materials as soap suds, or fog, or possibly even (((very) well) cooked) noodles. Just don't let your new snips get wet... :-)

Enjoy!