

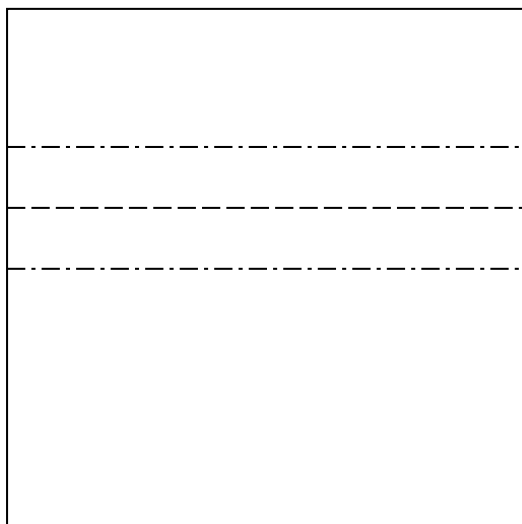
# Peapod

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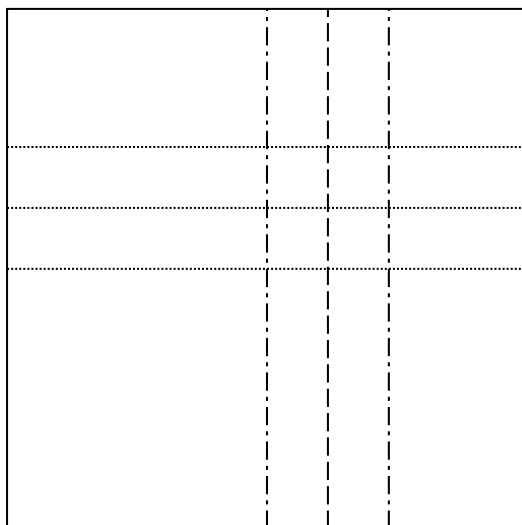
October 30, 2005

I'm going to describe a practice piece first; it helps a great deal to know what the rising corners that form the peas are supposed to look like before trying to make a bunch of 1/4" ones. So these will be steps 0.X, and step 1 will follow later. Begin with smallish square paper, the exact size and certainly the color are unimportant.

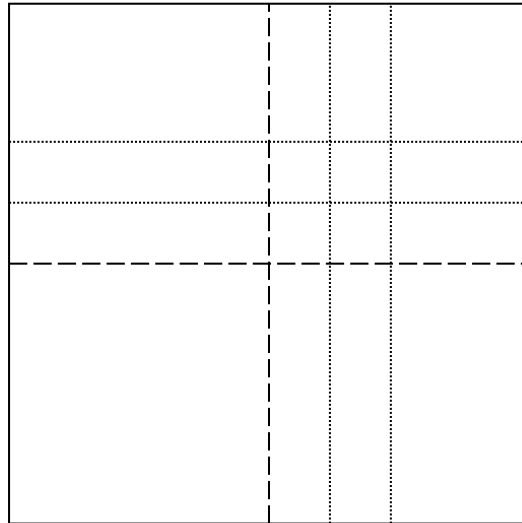
Step 0.1: make three parallel and equi-spaced folds in the paper, parallel to an edge: mountain-folds on the outside, and a valley-fold in the middle. The exact spacing and position are not important, this is just a practice piece after all; but they do have to be equally spaced.



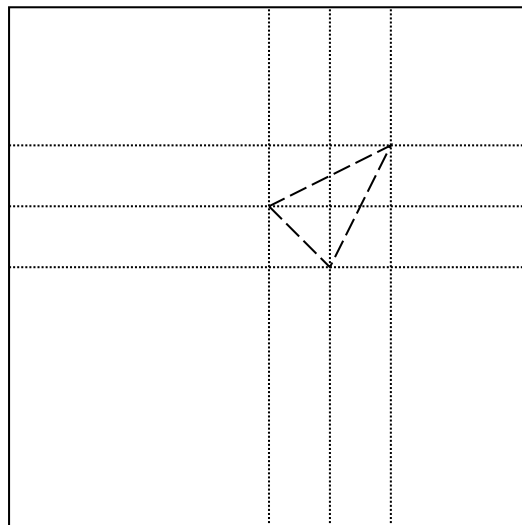
Step 0.2: make three more parallel and equi-spaced folds in the paper, parallel to the perpendicular edges: again mountain-folds on the outside, and a valley-fold in the middle. The position is again unimportant, but the spacing must be the same as for the folds in the previous step.



Step 0.3: reverse the left-most of the vertical folds, and the bottom-most of the horizontal folds: ie, turn the mountain-fold into a valley-fold. (I specified a mountain-fold initially because (I think) it's easier to get the spacing right if it's folded as a pleat as I indicated; YMMV.) Most of the length of these folds is actually going to end up just lying flat and unfolded, but a short stretch of each one is going to be the bottom of the wall of the rising corner, i.e., it'll end up being a valley-fold.

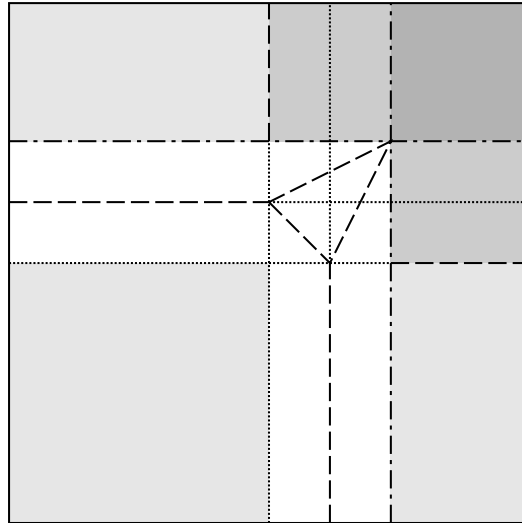


Step 0.4: make the three short diagonal valley-folds as indicated

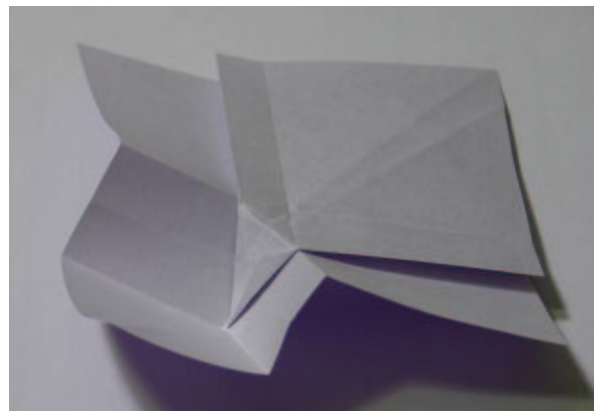
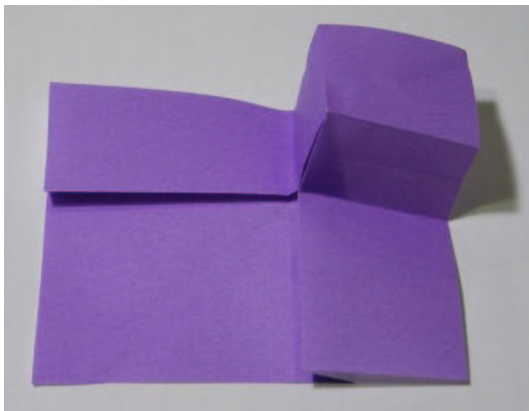


When you make the real peapod, you'll skip making these folds; everything is too small-scale to easily fold them. These small folds will get formed automatically as everything else comes into place (it's trickier, but it can be done).

Step 0.5: here's a recap of the important folds; the inessential stuff is shown as just dotted lines. The lightest gray areas are going to end up as the flat bottom, the medium gray areas will be the vertical walls, and the dark gray will be the top of the mesa. The white areas are going to get covered completely. To make this fold, start from the outside of the white areas, at the left and bottom edges, and pleat according to the two valley- and mountain-folds. With a bit of coaxing, the other folds will fall into place. Obviously, the model will not lie flat anymore!

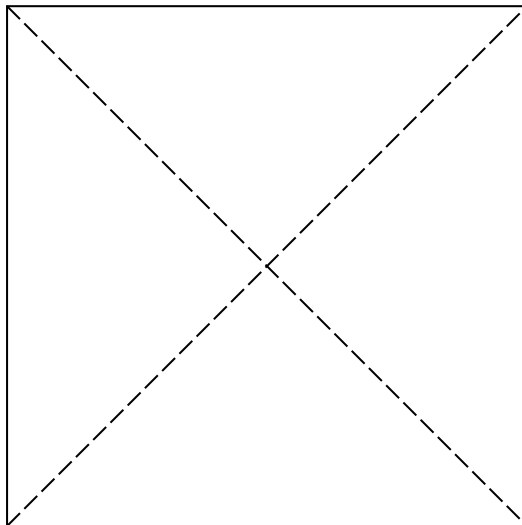


At this point, my l33t postscript-hacking skillz fail, so here's a picture of the final result, from the top on the left, and from the bottom on the right:

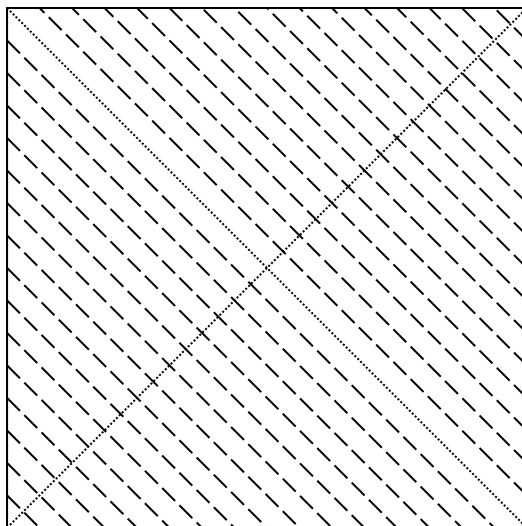


Now on to the real peapod!

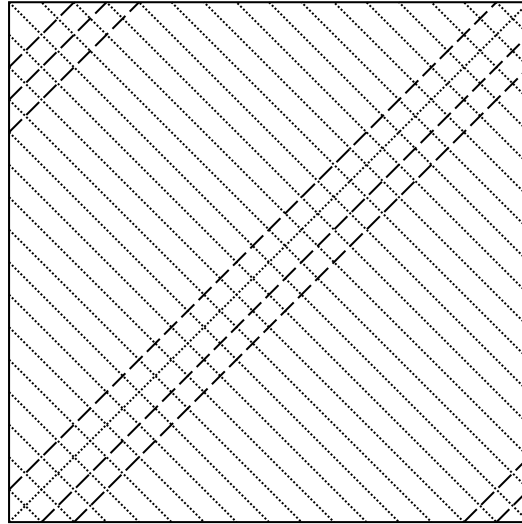
Step 1: begin with a square piece of paper, approximately 150 mm or 6" on a side. It doesn't really matter whether you begin with the colored side up or down, the first folds are all going to be both valley- and mountain-folded; it makes folding the little cubes a lot easier if the paper is very relaxed along all of these creases. I find it's just a bit easier to see the creases on the white side, and since it's important to get everything uniformly-spaced, I'll show them on the white side. Fold and unfold the paper along both diagonals:



Step 2: pick one of the diagonals and divide it into 32nds; for a 150-mm piece of paper, that works out to about 6.6 mm which is just a smidgen over  $1/4$ ". This'll make a peapod with four peas; if you want to make one with two peas, you can probably get away with dividing into 16ths (but I haven't tried this). This division sounds horrid, but actually it isn't too bad. The following may be obvious, gentle reader, in which case please forgive me; but in case it's not — *don't* start by folding the first  $1/32$ , then the second, then the third; instead, first divide the diagonal into  $1/4$ ths by bringing each corner to the center of the paper where the two diagonals cross, then divide into  $1/8$ ths by bringing each corner to where the  $1/4$ th lines you just made cross the diagonal, then divide into  $1/16$ ths using the  $1/8$ th lines, and finally divide into  $1/32$ nds using the  $1/16$ th lines.

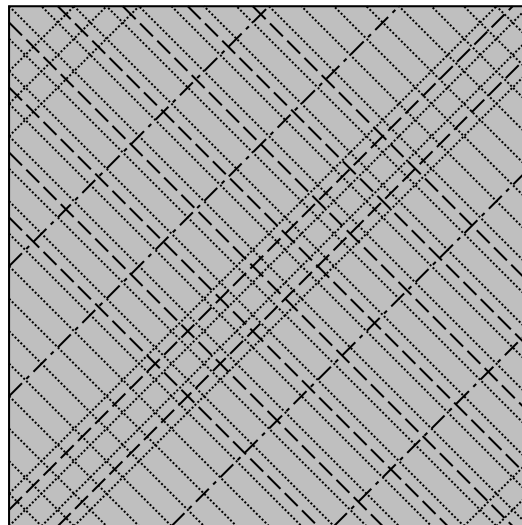


Step 3: make the indicated folds parallel to the other diagonal. Do the outer folds (near the tips) first, they are the indicator lines for the inner folds. Note that there are five indicator lines, but I've only shown three long folds near the diagonal. The two remaining indicator lines are going to get used in a second, never fear...

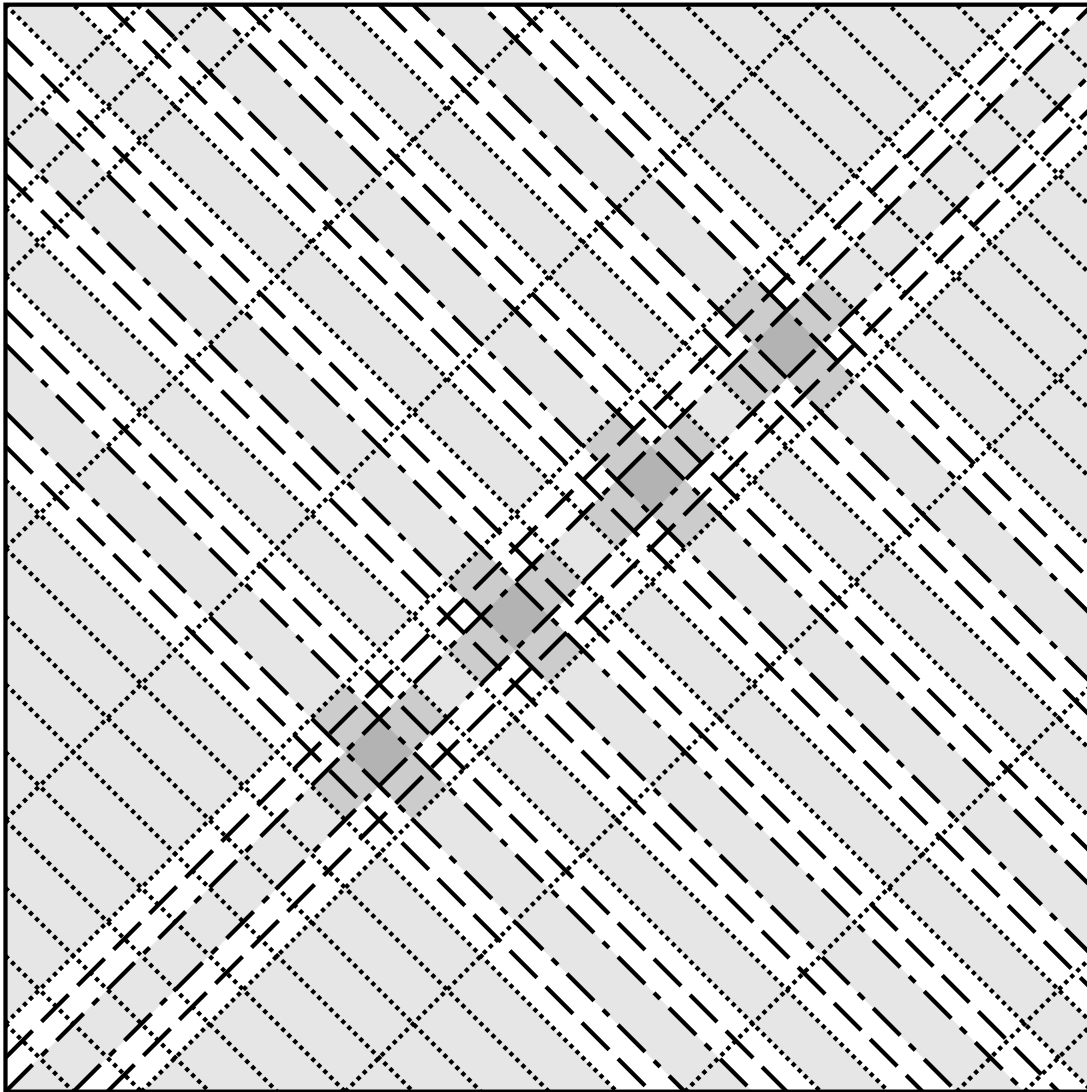


Once you've made all these folds, make all folds along both directions go both ways, if you haven't already done so.

Step 4: at this point, it begins to matter which way the folds go: so turn the paper over so that the colored side is up; then make the indicated folds in both directions. The valley-folds close to the diagonal have to be pretty accurate, as do those crossing the diagonal; the mountain-folds farther out can be a bit more loosely-placed – these will get used to make the pod at the end, and you have some flexibility there.



Step 5: ok, the first 90% are done; now this step is the *other* 90%!† Remember that practice corner on the first three pages of these instructions? Now you get to make 16 of them! This is where it gets a little tricky to draw pictures, so I'll go back to the color scheme I used in the practice piece, and try to describe what to do.



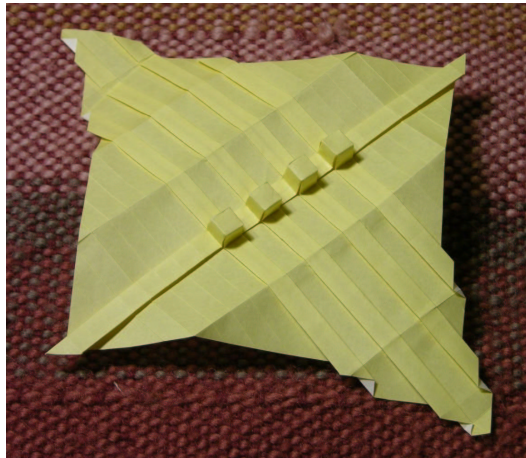
Start from the lower left, and fold both pleats along the / diagonal until you get to the first \ pleat; fold that, too. Then unfold everything partway, and starting from the ends of one of the / pleats and the corresponding \ pleat, close up the fold; with a bit of coaxing, the corner will form. Do the same from the other side to get the two lower-left-most corners, i.e., the lower-left portion of the lower-left pea, formed. At this point, if everything went correctly, you'll have a raised ridge extending upward and to the right along the diagonal. Now fold the two / pleats from the upper right, and the second \ pleat, to fold that ridge back down flat and form the remaining two corners of the first pea.

You may now stop and have a stiff drink.

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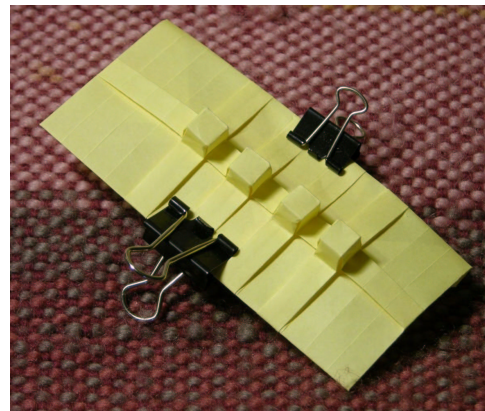
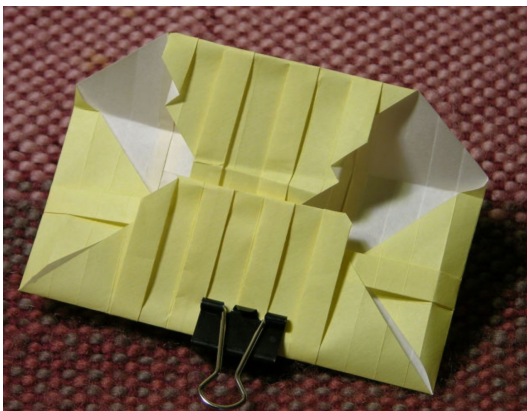
† `<cackle style="sadistic"/>`

Next, fold the third \ pleat from both sides of the diagonal, and coax apart the short segments of the / pleats just upward and to the right of the first pea; again, form two corners and thereby a ridge going off upward along the diagonal. Repeat all of this until you've made all four peas. Then take a pencil or other pointy object and crisp up the corners from underneath, and then square them up again from the top. You should now have four beautiful little cubes along the diagonal, as shown in the following picture

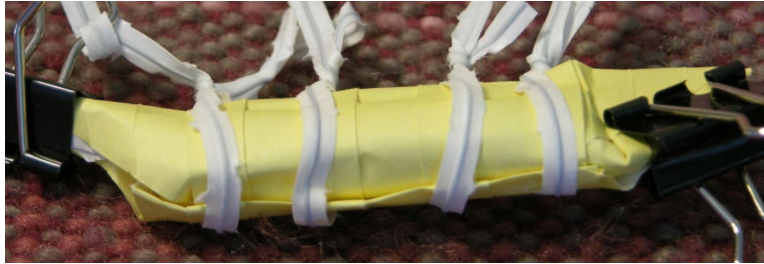


Step 6: take a 3/16" dowel with a rounded end, or a pencil with a nicely-rounded eraser, and stick it into the back of each pea; then squeeze down the corners from the front, to make the peas rounded. You can do this after having wetted the peas; it seemed to work about equally well wet or dry when I tried it (except that the paper was more fragile when wet), so I haven't bothered with wet-folding. Alternately, you can skip this step and make genetically-modified peas, specially engineered to be square and thus not roll off your knife.

Step 7: fold the corners under, along existing folds: first the two ends of the diagonal, then one side, and then the other. The bottom of the left picture corresponds to the lower right of the diagram in step 5. Make sure to trap the end of the other side underneath this; it keeps everything together a bit better. Note also the binder clips: by this point, due to all the pleats, the paper is going to *seriously* resist lying flat!



Step 8: The remainder is pretty free-form. Curl up the sides of the pod until they're where you like them — the paper will fight you, so you'll need to tie up the pod. Gift-wrapping ribbon or grocery twist-ties work well; you want something that will not lose strength or change length when it gets wet. You want to have the bottom closed up completely, yet keep the pod open a bit at the top so you can see the peas. This is a bit tricky; I find it's better to err on the side of closing everything up, because you can always open up the pod a little when it's all done. Note on the last picture above that there are four divisions of paper on one end of the pod, and three on the other end. The end with four divisions gets turned into the stem of the peapod; twist that into a stem shape after you've folded up the diagonal a bit. On the other end, just fold up to a diagonal and tuck in the piece you folded over. Once you've got both ends shaped the way you like them, stick on binder clips to hold the paper in that shape.



Then, dip the whole thing in water for ten or fifteen seconds, and finally hang it up to dry somewhere safe. Hang it so that the stem points downward, that way the excess water can run out and the peapod will dry quicker. Once it's completely dry, you can take off all the bondage stuff.



Happy pea-ing! :-)

Enjoy!