

Two hyperbolic paraboloid sliceforms

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Two models

This document contains templates for two different sliceforms which form the same overall shape (a hyperbolic paraboloid), but are made from different shapes (entirely straight lines or entirely parabolas). Each model can be made in the same way by following the instructions below.

Cutting out

Cut out two of each piece labelled 'A' in one colour of card, and two of each piece labelled 'B' in another colour of card (you only need one of each of A1 and B1 but it's easier to cut everything out double and discard the unnecessary piece later). This method gives good results:

- Place the template on top of two pieces of card of the same colour, and staple around the outside of the shape you want to cut out. Bear in mind that you will be cutting the slits in each shape with the staples still there, so try to avoid placing the staples somewhere that will be annoying later.
- Roughly cut the shape out (without cutting the staples off).
- Carefully cut all of the slits shown on the template. Each slit needs some width to it for the model to fit together correctly, so make two cuts on either side of the line to remove a narrow strip of card.
- Cut the shape out by following the outline on the template.

Assembly

Start with pieces A1 and B1, and slide each one into the middle slit of the other. Then add the two copies of piece B2 by sliding the middle slit of B2 into a slit on A1 adjacent to B1. (For the straight lines model, add the pieces in such a way that the 'pointy' end of each copy of B2 appears on opposite sides of the model). Next, add the two copies of A2 in a similar way, sliding the three central slits into the next available slits on B2, B1 and B2. Continue to add the higher numbered pieces in turn, taking care to ensure all the slits are lined up as you slide a new piece in so the long strips of card don't catch and bend.

The model should fold flat in two directions, but at first it will be quite reluctant to do so (especially in one direction) and lots of pieces will get caught and need freeing to avoid damaging them. Repeatedly folding and opening the model in each direction will encourage it to move more easily.



