

Make your own **Lego Brick Pop-Up**

Disclaimer

'LEGO' is a registered trade mark of LEGO Juris A/S. The word 'Lego' is used here nominatively in order to help interested individuals identify and locate these instructions. This resource is not sponsored or endorsed by the trademark holder.

Things you'll need

The following will make **one pair** of pop-ups complete with envelopes.

Materials:

- ▶ 1 sheet white card - A4, 160 gsm
- ▶ 1 sheet coloured card - A4, 160 gsm
- ▶ 2 sheets coloured paper - A4, 80 gsm

Lego bricks traditionally come in bright primary colours – red, yellow and blue – but you can choose any colour you like. Choose paper and card of the same colour if you'd like the envelopes to match the pop-ups.

Tools:

- ▶ Craft knife
- ▶ Steel-edged rule
- ▶ Self-healing cutting mat
- ▶ An old ballpoint pen (for scoring)
- ▶ Glue pen, PVA glue or double-sided tape
- ▶ A4 printer

Pop-up basics

Here are a few things you'll need to know before you can start making your pop-up.

▶ Scoring

Scoring helps you make folds neatly and in the right places. You can score fold lines using the back of a craft knife or by applying pressure with an old ballpoint pen. The latter method is often better because it compresses (rather than removes) material along the fold line, which avoids weakening the model.

You can either score all fold lines on the same side of the material, or you can score each line individually on the side of the material where it will be a valley fold. The second method takes longer but can make folding the model easier later on.

▶ Cutting

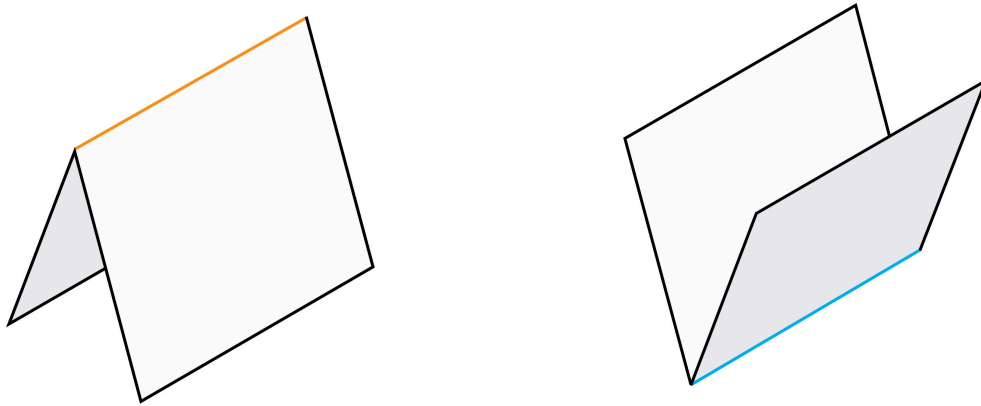
Cut lines are marked on the templates in **solid black**. You can cut along the lines in any order, though there is often a way to approach the cutting which will make things easier.

Try cutting out any small islands first – eyes, windows, et cetera. Next cut along any curves and fine sections, such as where there are many cut lines close together. Beginning with these cuts minimises the stress felt by the material in areas where it is weakest, and when a rule is not being used to distribute the tension from the knife.

Making the remaining cuts with a steel rule is then straightforward.

► Folding

Folding is perhaps the most difficult step in assembling your pop-up, but should not be too much trouble provided you have scored all the fold lines. There are two types of fold – mountain and valley. Mountain folds are marked by **orange** lines while valley folds are in **light blue**, as shown below.



Making the folds in this way will mean that the printed side of the material becomes the back of the model, so that all of the fold lines and markings will be hidden in the finished pop-up.

Begin folding the model by pinching along each of the fold lines so that they bend in the right direction; avoid causing the nearby material to curve where possible. You can then tease the model into its open position, where all the folds form right angles. This is most easily achieved by repeatedly working through all of the folds from left to right, ensuring that they are always all at similar levels.

Getting the model to its closed position is a simple continuation of this process: slowly squash the model, starting at the spine and making sure that the only bending is at the fold lines. Ensure that all of the 'steps' are pulled out to their fullest extent as the model flattens, and use your thumb to reinforce the final folds.

► Glueing

The final step in the assembly of your pop-up is to glue the separate pieces together. This is generally relatively straightforward but there are a few things worth noting.

First, don't use too much glue! Glue contains moisture and so can cause your model to warp and bubble up – the less you can get away with, the better. Glue pens are good here as they are drier and slower setting in air than PVA, though the bond isn't as strong. You can avoid glue altogether and use double-sided tape, but bear in mind that tape is very difficult to adjust once you've made contact, and can look unsightly if it's too thick.

The best way to glue a pop-up model to its backing is to apply your chosen adhesive in a thin line all around the perimeter of the printed side; suggested glue areas are shaded in grey on the templates (you can also add extra lines of adhesive within the perimeter if necessary). Make the contact while the pop-up model and backing are in the open (right angled) position – the most important part to align correctly is the spine, since you can trim the border later if necessary. Be sure to apply pressure using your fingers to all of the glue areas to get a good bond, and give the glue time to set in the open position before you close the finished pop-up for the first time.

► General hints and tips

If you're trying to make a complicated model, it can often help to make a rough version using 80 gsm paper first – there's no need to cut out all the details at this point, just get an idea of how it will fold. It can also be helpful to practise on a model at double scale.

Assembly instructions

The following will guide you through the process of making a pair of pop-ups and accompanying envelopes.

1. Printing templates

For each pair of pop-ups you intend to make, you will need to print the following templates:

- ▶ 1 x BS04 on white card
- ▶ 1 x SLB02 on coloured card
- ▶ 2 x ES01 on coloured paper

The templates are designed to fit on a sheet of A4 when printed at 100%, though some printers may impose large borders and clip the edges; if this occurs, try selecting 'borderless' in the print options or reduce the print scale slightly. As long as you print all of the templates at the same scale, it does not matter which scale you choose.

2. Making the interior

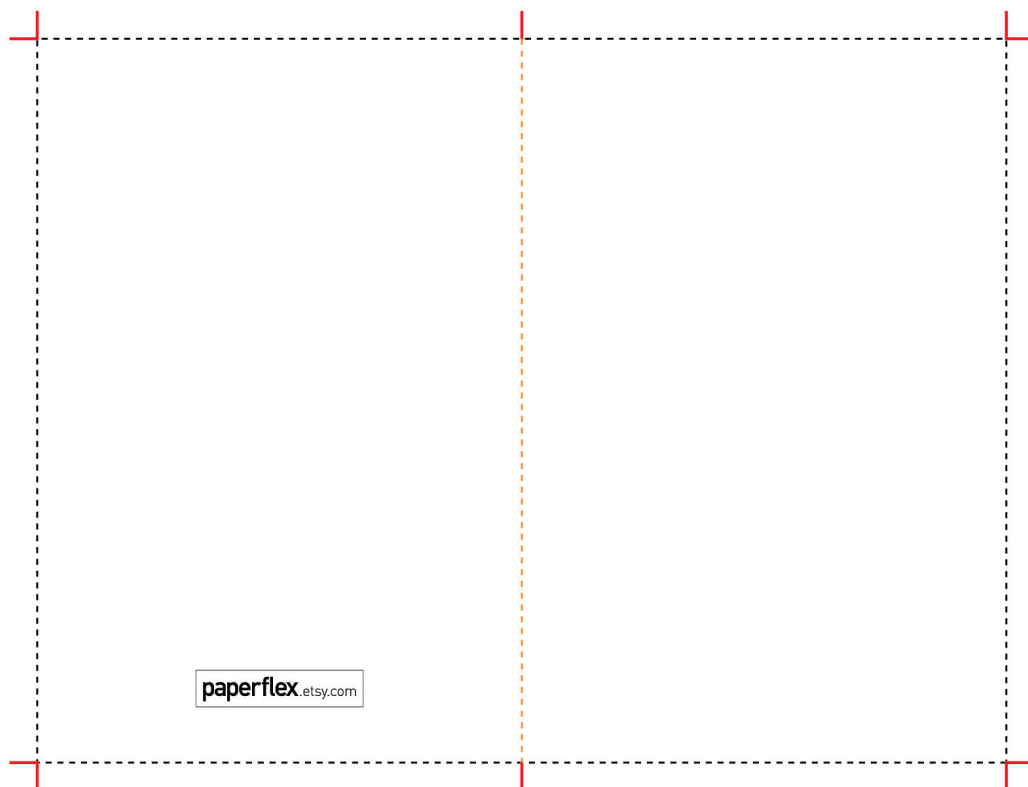
Template SLB02 contains two pop-up interiors as well as emblems to go on the front of the finished pop-ups.

Score, cut and fold the two interiors using the instructions in the previous section. It is generally best to score all of the fold lines before you make any cuts to avoid snagging the material.

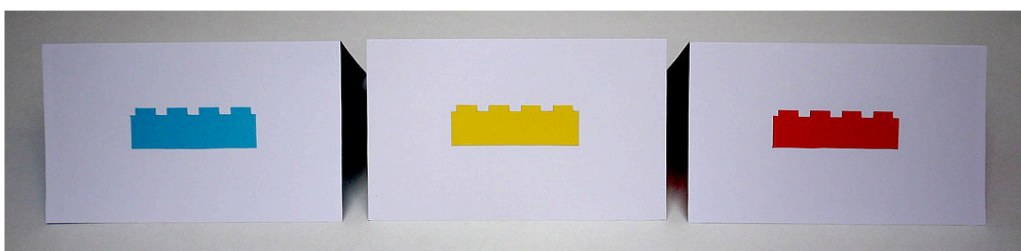
Cut out two of the emblems for use later (the third is spare).

3. Attaching the backing

The template BS04 contains markings to help you cut a pair of backings for your pop-ups. Since the edges of the backing will be visible from both sides, the actual cut and fold lines have not been printed; instead, registration marks indicating the outer border and position of the spine are provided. Hopefully it is clear how to construct the backings from these marks, however a filled in version is provided below for reference.



Score and cut as above to make the backings; you can then glue the interiors to the backings as in the previous section. After allowing the glue time to set, attach one of the emblems to the front of each pop-up using your chosen adhesive.



4. Making the envelopes

The envelopes are constructed from template ES01.

The fold lines are the four lines which form the rectangle within the envelope outline. They are printed in light grey so that they are unnoticeable in the finished envelope, though they should be valley folds. The darker lines that form the perimeter are the cut lines.

The envelopes are fairly straightforward to assemble – simply score, cut and fold as above and then apply adhesive as necessary to attach the two side tabs to the large bottom flap. It is best to cut the angled sides of the flaps from the inside outwards to avoid nicking the corners of the envelope.

You can seal the envelopes with glue, single- or double-sided tape, or with gift spots if you have them.

5. Done!

Congratulations. I hope that you are happy with your pop-ups and that this guide has been helpful.

If you have any questions, feedback or suggestions, please feel free to get in touch via Etsy.

paperflex.etsy.com