

Seven Colour Torus Patchwork Cushion

Skill and Experience

How it relates to maths

In the card 'Seven Colour Torus Puzzle' there is a short introduction to colour maps. On a colouring map on a sphere, a minimum of four colours are needed so no two countries with a boundary in common have the same colour. On a torus however, as many of seven may be needed. A symmetrical version of a map with seven countries on a torus was worked out by Peter Ungar and John Leech, which can be found here: Ungar-Leech Seven Coloration of the Torus by Norton Starr (amherst.edu).



What you'll need







Step-by-Step Instructions

This is not so easy a project to complete as some others. I strongly recommend that you make a simple paper version to see how it goes together before trying one in material. If you are not happy sewing, you might just like to make the flat paper version.



SEVEN COLOUR TORUS PATCHWORK CUSHION



11 For each colour, refer back to the pattern to work out how they go together so that A is on top of A', B on top of B' and so on. Put right sides together and pin and tack them making sure the pen marks are aligned. Sew them by machine or by hand along the pen marks. Eventually you should have seven different coloured sets each looking something like this:



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Now comes the fun bit! Decide what order you want your colours to go in and lay the material out to check that it will all fit together.

You now sew together as much as you can while the whole thing is inside out BUT you need to remember that you want to turn it the right way round before you stuff it. So, sew as many bits as you can to make a tube like this while it is inside out.







Now turn the tube right sides outwards. You should still be able to sew some more seams with right sides together on a machine with a bit of thought and effort. Eventually though, you have to use a needle and hand sew, until there is as small an opening as you can manage.

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Start stuffing the cushion while there is still quite a large opening as it is hard to push the filling round the tube. Stuff and complete the seams until you have finished.



The pattern on the A4 sheet makes an unstuffed circle with a diameter of just under 29cm. The pattern I actually used was enlarged scale factor 2 and has a final stuffed diameter of about 50cm. Use a laundry pen to draw around the pattern pieces. It's a great way of ensuring the lines don't rub off too easily, and will be hidden on the inside of the Torus once stuffed. You may notice that my cushion is a mirror image of the Ungar Leech torus made by Norton Star. If you cut out your patterns with the printed letters face down, your final torus should look more like the Norton Star one.