Geometric pattern drawing and colouring sheets based on the Courtauld Bag

HISTORY OF SCIENCE MUSEUM

THE COURTAULD Gallery

About the Courtauld Bag

The Courtauld Bag was made in Mosul (present-day Iraq) in the early 14th Century. At this time, Mosul was an important metalworking and silk textile production centre.

The bag is made of brass sheet with inlaid decoration in silver and gold, enhanced with black resin. The bag was probably originally lined with fabric or leather.

Geometric patterning is an important and well known expression of Islamic decorative design. Mosul was located on a major East-West trade route and some of the patterning on the bag, resembles traditional patterns found on Chinese textiles which might have been brought to Mosul by merchants. The influence of textiles can possibly also be seen in the twisted border pattern used around the lid edge and in the braided pattern used at the seams of the bag panels. Twisted and braided patterning is longstanding and very widespread, twist patterning is amongst the earliest deliberate decorative marks known, created by impressing rope into clay before it was fired.

The geometric patterning found on the Courtauld Bag is based on both triangular and square grids. The patterning on the bag is precise and symmetrical and it seems likely that it was marked out on the metal sheet using a ruler and compass and following widely used sets of guidelines which start from a circle. Both one-dimensional (border) and two-dimensional (all-over) designs are used on the bag, they show how the same motif used in a border or an all-over pattern can create a very different visual effect.

The colouring and drawing sheets

Equipment needed:
pencil and rubber;
coloured pencils/pens or paints to draw and colour the patterns;
ruler;
and compasses.

The set contains:
complete-the-pattern pages for drawing and colouring,
full-sheet patterns to colour,
plain square and triangular grid paper to practise the geometric patterns in the set or to design your own (print these pages separately for extra graph paper),
and a blank roundel frame.

The complete-the-pattern sheets in this set recreate the geometric patterns from the bag on gridded paper. They start with a complete example, then a broken-line version, then ask you to finish drawing the pattern across the line or the page.

As well as the geometric patterns to complete, there are some suggested extra activities to try, if you would like (suitable for around ages 10-12). The extra activities involve transforming the patterns by turning, reflecting or changing the scale of them. There is a solution sheet at the back of the set.

The Courtauld Bag is on display at the History of Science Museum as part of the exhibition Precious and Rare: Islamic metalwork from the Courtauld Gallery. The exhibition is a partnership between The Courtauld and the Subject Specialist Network (SSN) for Islamic Art and Material Culture (hosted by Birmingham Museums) and made possible with Art Fund support.

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Patterns in the set

Triangle-based patterns

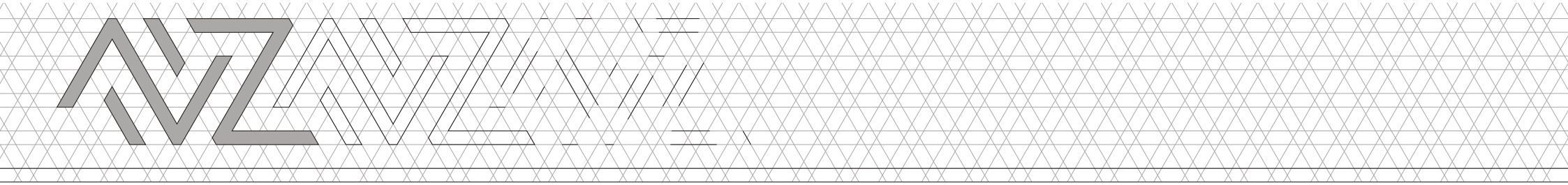
Twisted and braided patterns

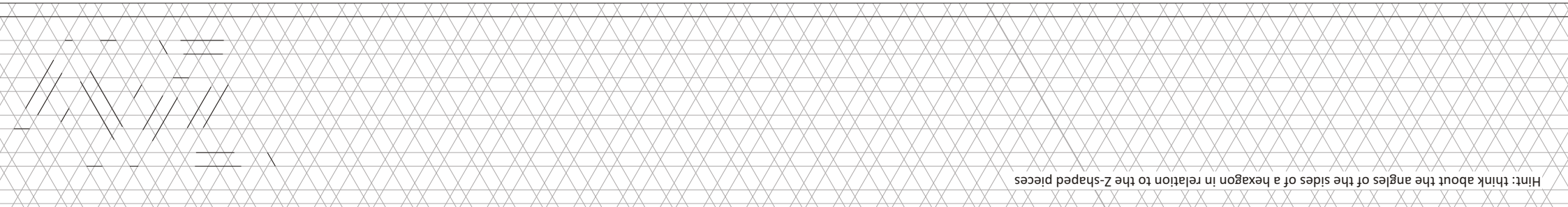
Square-based pattern

Courtauld Bag geometric pattern drawing and colouring sheet

This pattern is used around the edge of the lid panel of the bag. Complete the borders at the top of the page. Draw the pattern pieces in pencil until you become familiar with it so that you can correct any mistakes. Pay close attention to where the corners of the shapes fit on the grid to copy the pattern pieces exactly.

Extra activity: Try to draw this pattern as a border around a hexagon without changing the shapes of the pattern pieces or breaking the continuity of the pattern. If you want to use more than two repeats of the pattern in each side, you will need to stick together more than one sheet of grid paper. There is a hint at the bottom of the page.



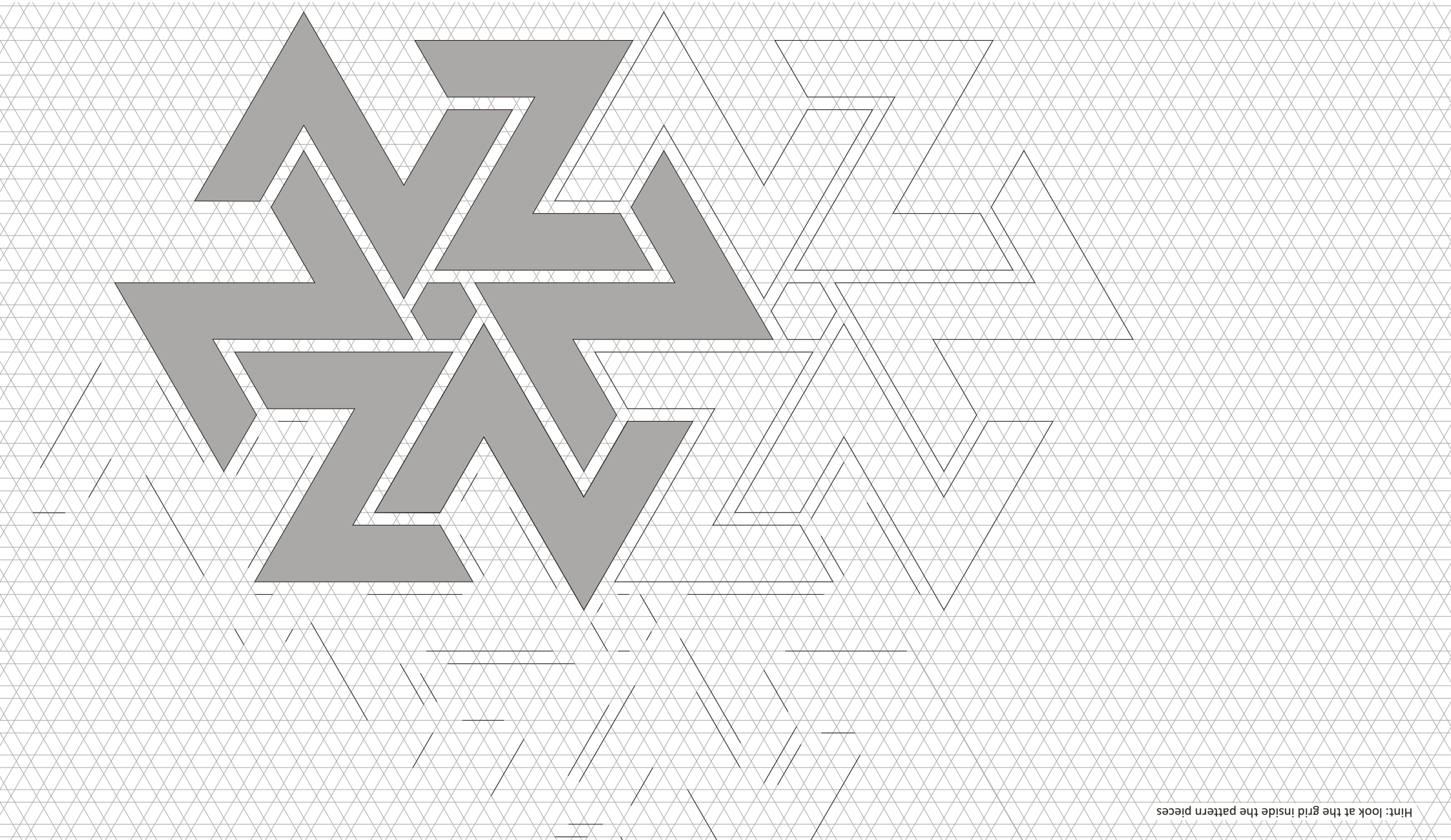


Hint: think about the angles of the sides of a hexagon in relation to the Z-shaped pieces

Courtauld Bag geometric pattern drawing and colouring sheet

Expand this geometric pattern to cover the page. Compare this sheet with the previous page and see if you can spot how the Z-shaped pieces have been changed from a border pattern to an all-over pattern.

Extra activity: reverse the proportions of this pattern so that the lines of the pattern pieces are the same width as the gaps between them now and the gaps are the same width as the pattern lines. There is a hint at the bottom of the page.

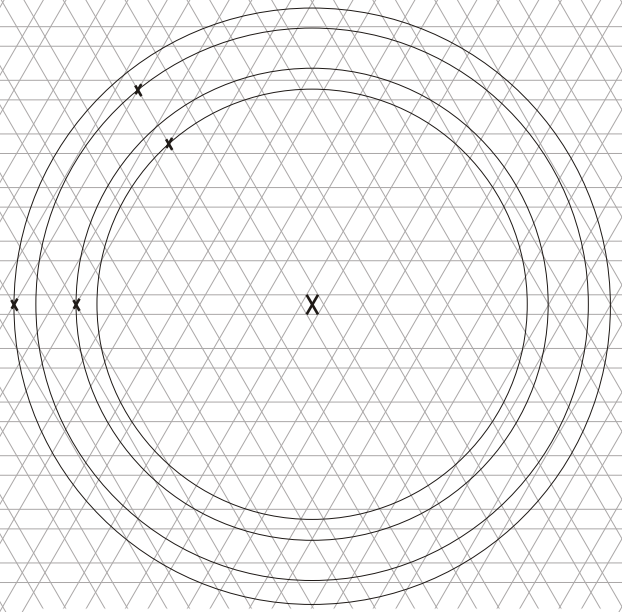


Hint: look at the grid inside the pattern pieces

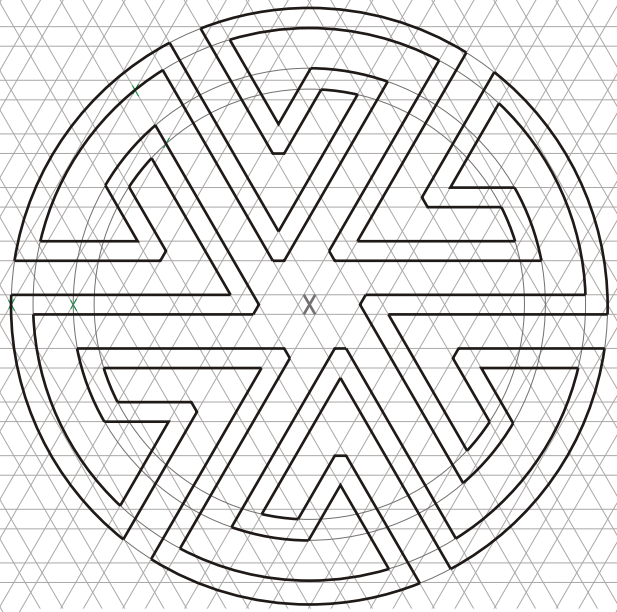
Courtauld Bag roundel drawing and colouring sheet

Following the instructions below, use the marked crosses at the right of the page to draw out the roundel, found on the strap mounts of the Courtauld Bag.

Extra activity: use a blank sheet of grid paper to try to draw the roundel again as a mirror image of the first one



Use a pencil and compasses to draw four guide circles with radius from the centre to each outside cross.

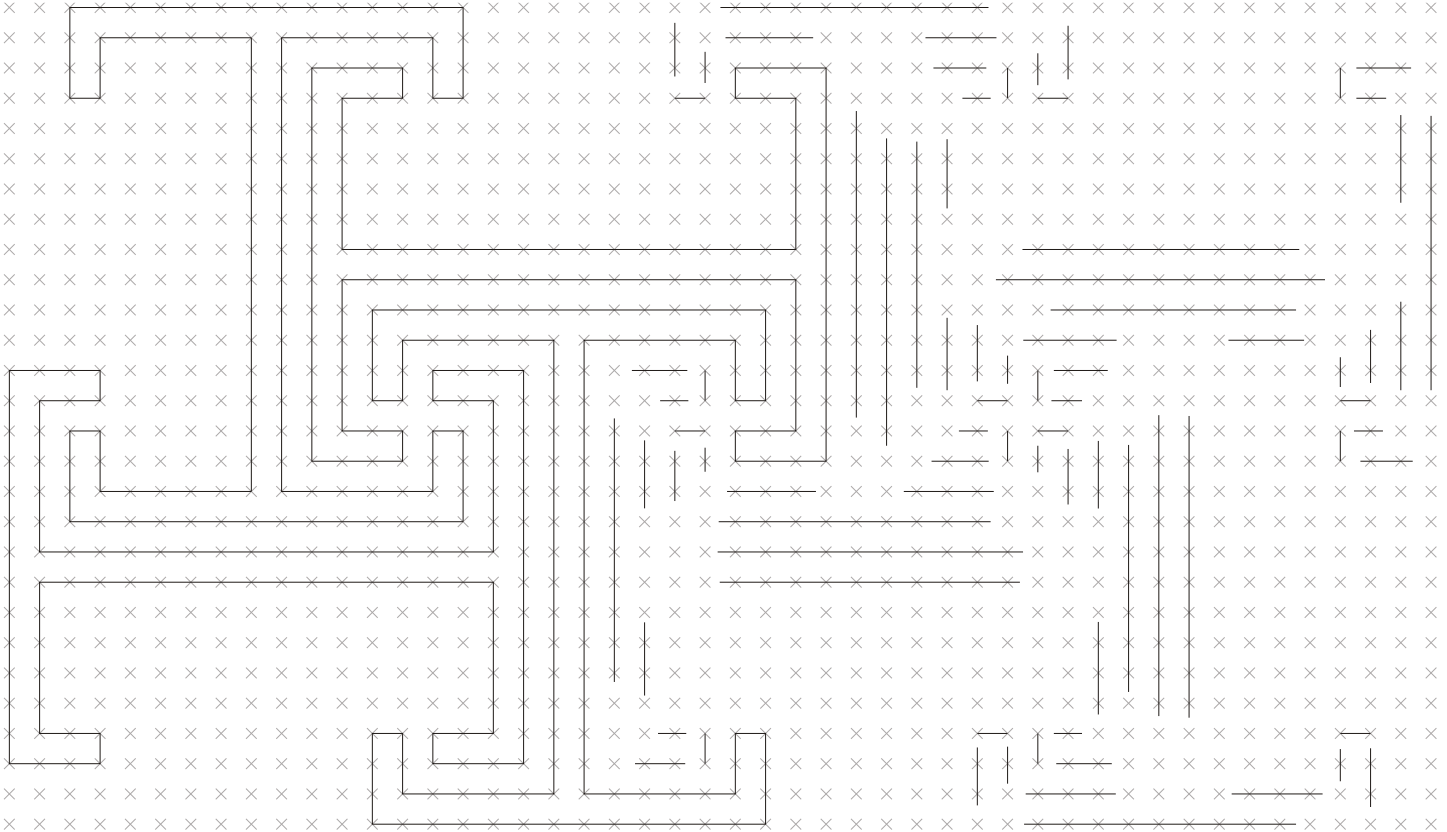


Draw in the roundel as above in pen, then rub out the pencil guidelines.

Courtauld Bag geometric pattern drawing and colouring sheet

Expand this geometric pattern to cover the page.

Extra activity: on the Courtauld Bag, this pattern runs diagonally. Use a new sheet of grid paper to redraw this pattern rotated by 45˚ with all the corners of the pieces on grid points. You will need to transform the size as well as the angle of the pieces. There is a hint at the bottom of the page.

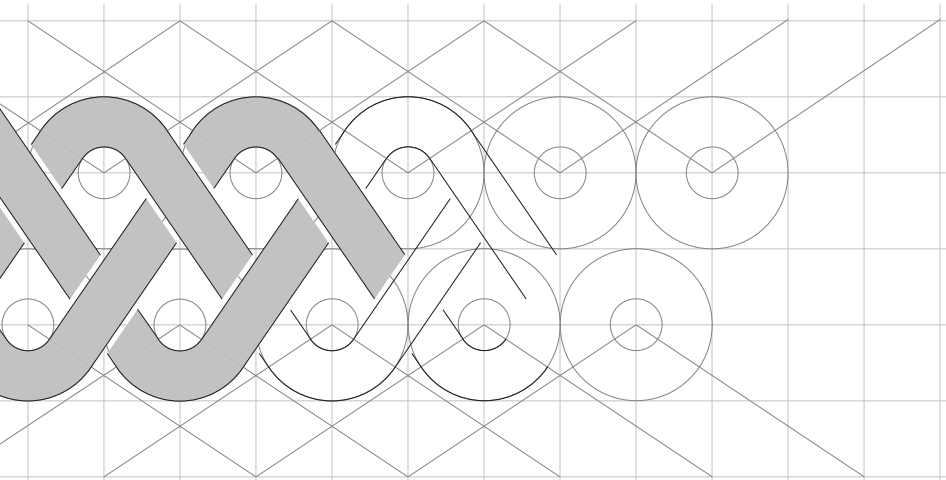


Hint: draw the longest lines 15 crosses long diagonally.

Courtauld Bag geometric pattern drawing and colouring sheet

Complete this border around the edge of the page. First draw out the grey guide circles using compasses and a pencil. Use the existing guide circles to set the radii for the compasses then draw in the straight guidelines with a ruler and pencil. Next draw in the arcs around the outlines of the circles between the two guidelines. Draw in the lines linking the arcs taking care to note which line crosses which. Finally, rub out the guidelines

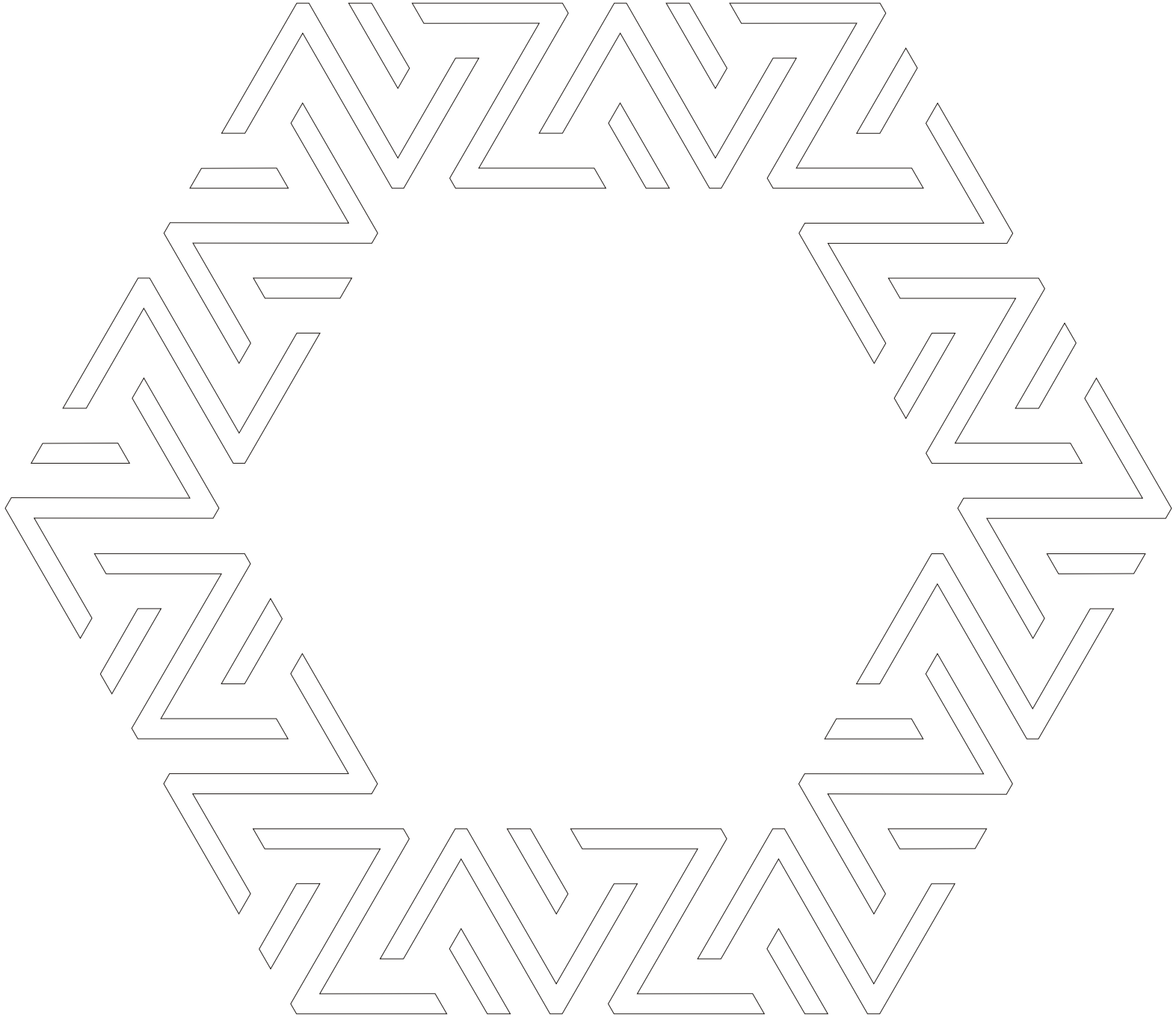
Extra activity: try varying the widths of the bands by changing the diameters of the guide circles. You will need to alter the lengths of the arcs according to the diameters of the circles. The arc length can be determined by drawing in guidelines that are tangent to both the small and large circle which are to be linked in the pattern creating two points of tangency on each circle, the arcs will run between these points.

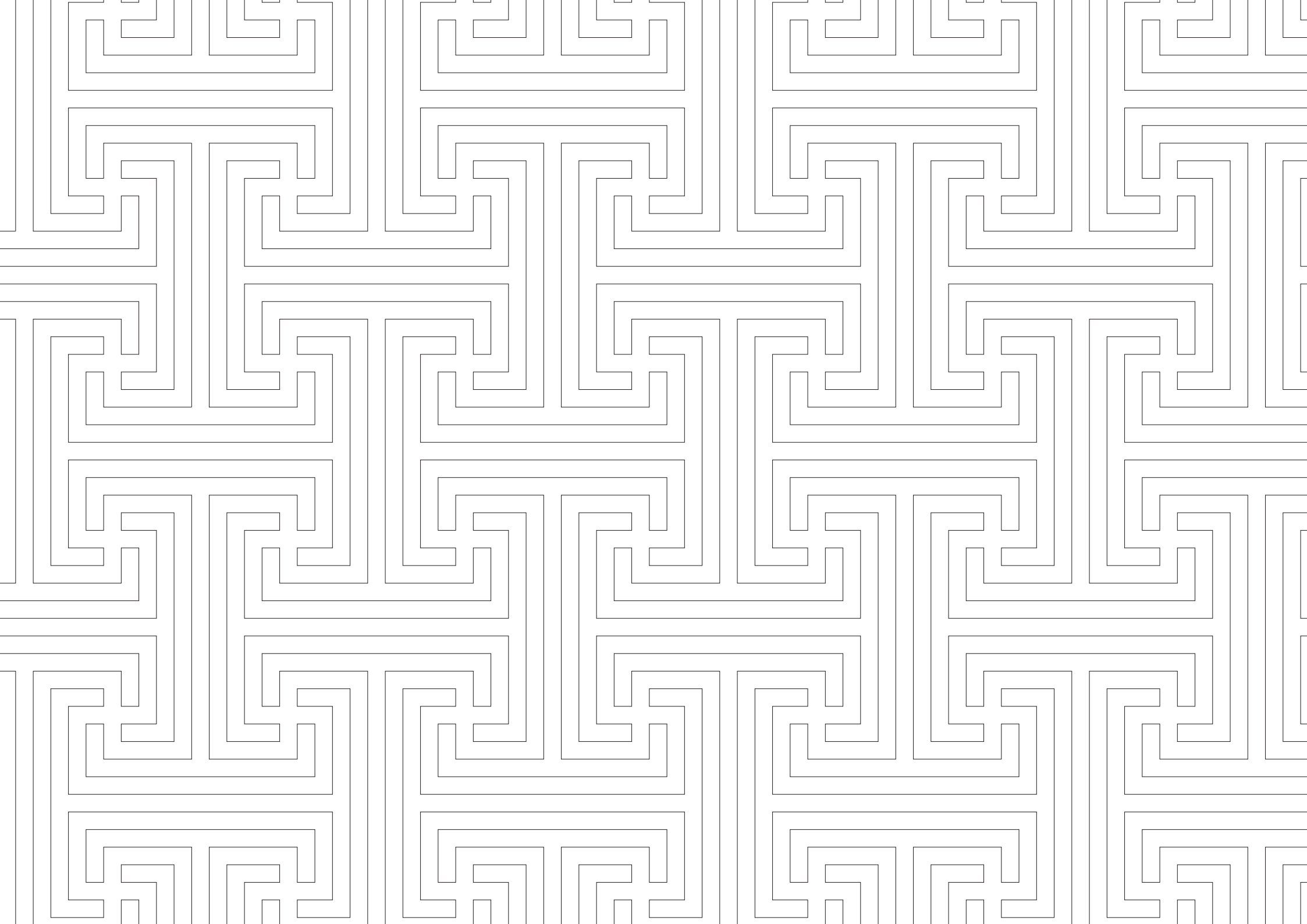


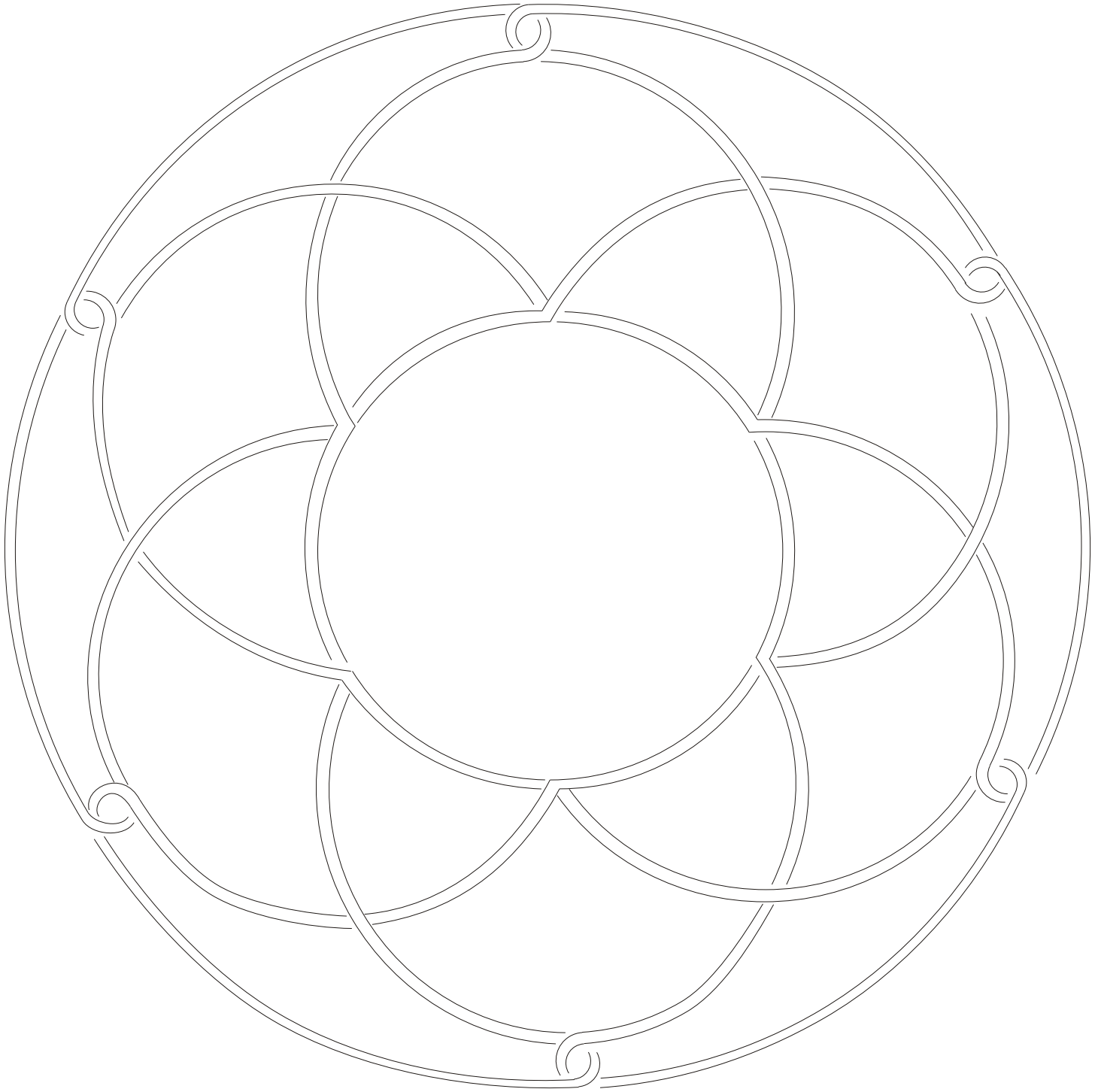
Courtauld Bag geometric pattern drawing and colouring sheet

Complete this border around the edge of the page.

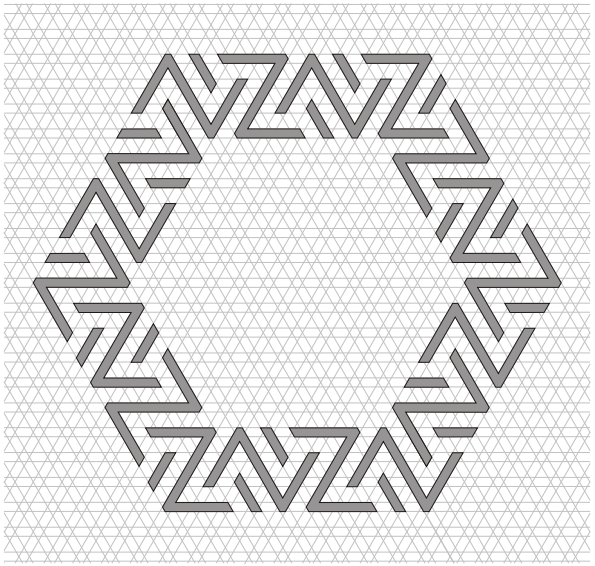
Extra activity: around the lid flap of the Courtauld Bag, this twist pattern includes links that are stretched parallel to the border to cover two grid squares, try drawing some links that are two or more squares long. You could also vary the pattern by including some links that are stretched perpendicularly to the border.

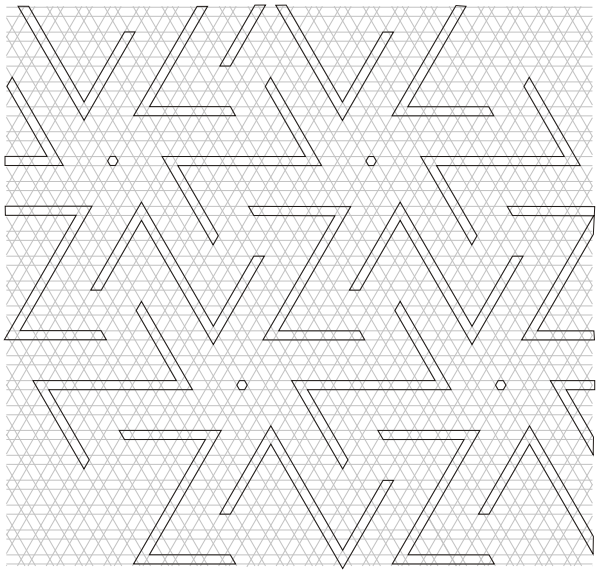


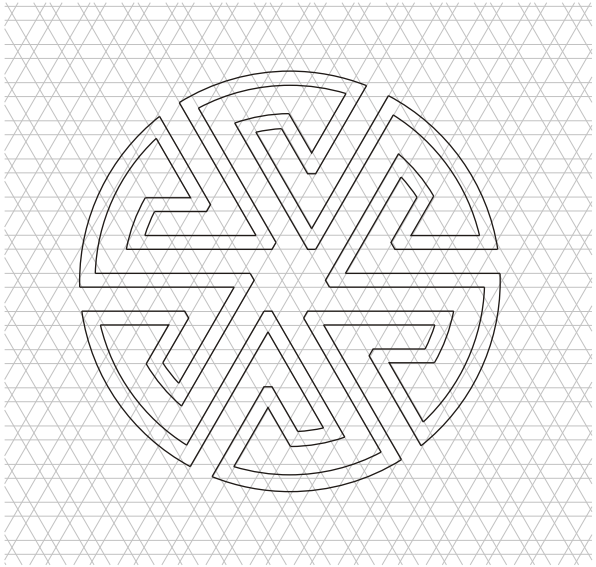


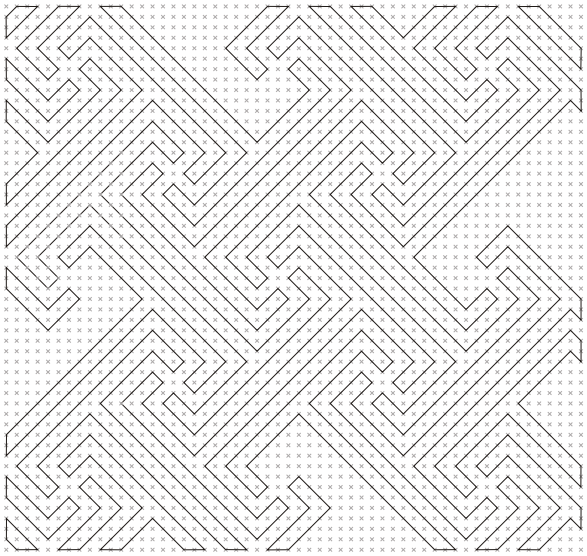


Extra activities solution sheet

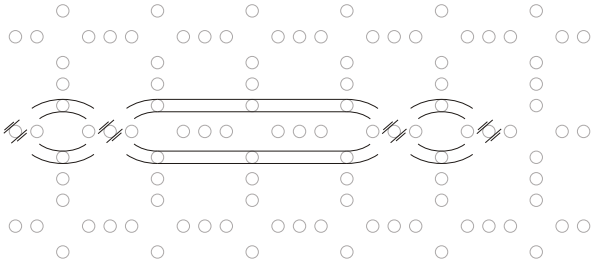




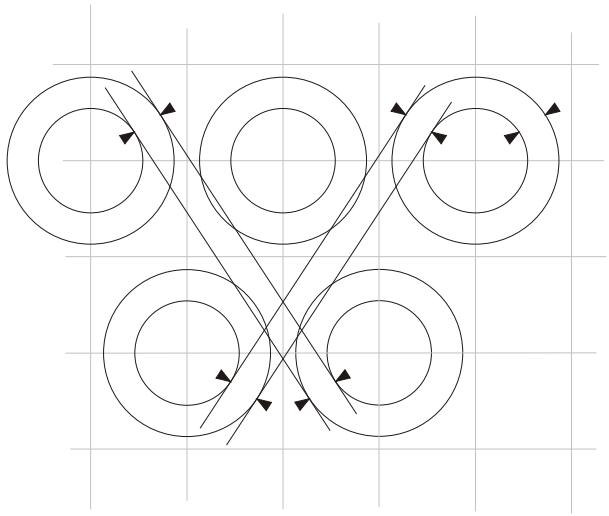




One solution is shown above. Other solutions are possible at different scale transformations. Correct solutions have identical motifs throughout, have the same widths and gaps between the bars of the motifs and with all lines running through grid points.



The stretched link can stretch over as many grid squares as you want.



The solution for this activity will depend on the size of the circles you have drawn. The drawing shows the tangent lines and the points of tangency marked with triangles that indicate the starts and ends of the arcs.