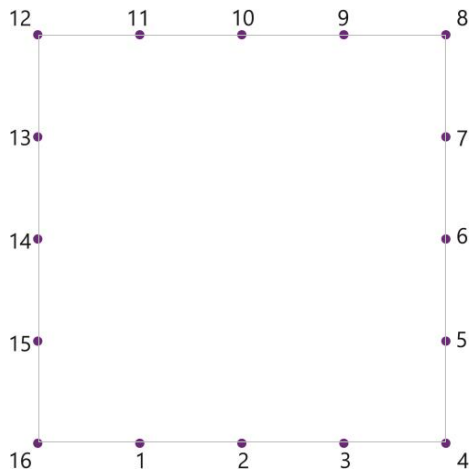
Stitching with shapes and numbers

This activity is all about playing with shapes and number patterns. You will find that all sorts of interesting and beautiful stitch designs emerge. And you will also be able to do lots of experiments by changing the shapes and number sequences you use. These experiments are stitched on card but you can readily transfer the identical technique to fabric.

You will need a piece of heavy card (this could have a picture or design on it that will sit behind your stitching), a blank piece of tracing paper, a sharp needle, a length of thread and some sticky tape. Start by drawing a shape on the tracing paper, e.g. a square, triangle, circle, hexagon, etc. Now mark evenly spaced points all around the perimeter of your shape. Here we use 16 points on a square to get us started, but you will find that more complex and interesting shapes are possible when you use more points. It will help to label these points from 1 through to 16.



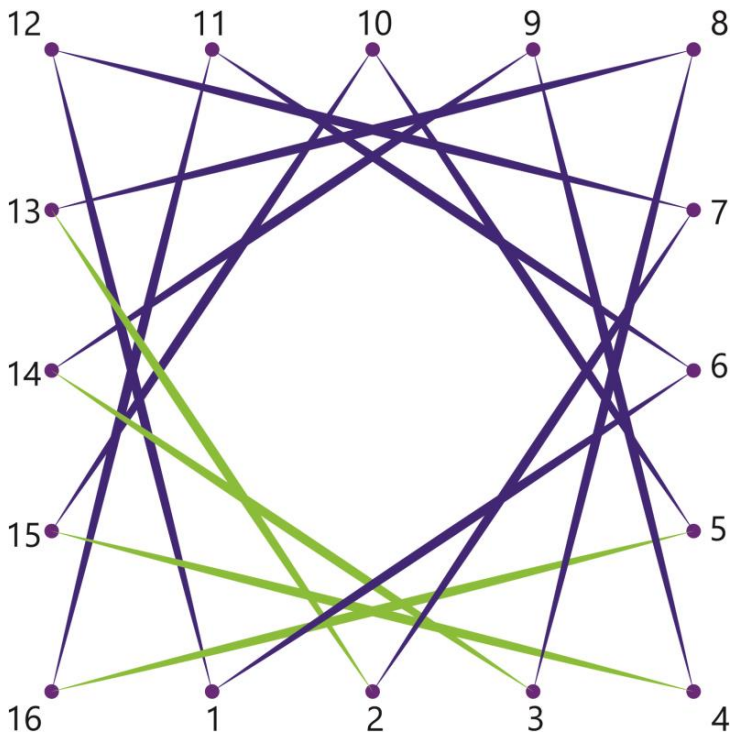
Lay the tracing paper over the card and use the sharp needle to pierce a hole through the paper and the card at each of the evenly spaced points. When you are finished, your card should have a pattern of evenly spaced holes in it. If you wish, you can label these holes on the **back** of the card.

Thread your needle with a fairly long piece of thread (you want to be able to stitch the whole motif with one length of thread if possible). Use a small piece of sticky tape to attach the tail to the back of the card. Now, you are ready to start stitching. Our first pattern uses **addition:** we add 5 to our current number to tell us where to stitch.

- Bring your needle up at point '1'; then 1 + 5 = 6, so the needle goes down at point '6'.
- Bring your needle up at point '2'; then 2 + 5 = 7, so the needle goes down at point '7'.
- Bring your needle up at point '3'; then 3 + 5 = 8, so the needle goes down at point '8'.
- Continue in the same way all around the circle following the table overleaf.
- When working the final four stitches, tuck them under the previously worked stitches (shown in green on the diagram overleaf) to get a smoother final motif.

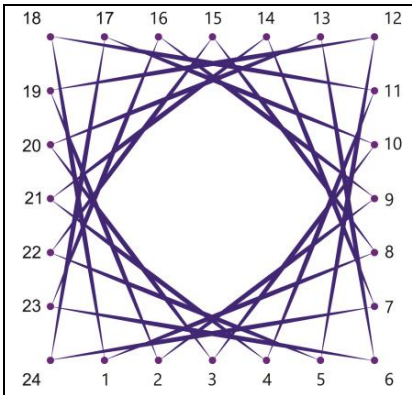
You will find that at point '12' there is a problem because 12 + 5 = 17 but there is no point '17'! We deal with this by working "modulo 16": subtracting multiples of 16 until we get down to a value between 1 and 16. (We could also divide the number by 16 and calculate the remainder – the answer will be the same.)

Needle Up = n	Needle Down = n+5 (modulo 16)
1	6
2	7
3	8
4	9
5	10
6	11
7	12
8	13
9	14
10	15
11	16
12	1
13	2
14	3
15	4
16	5

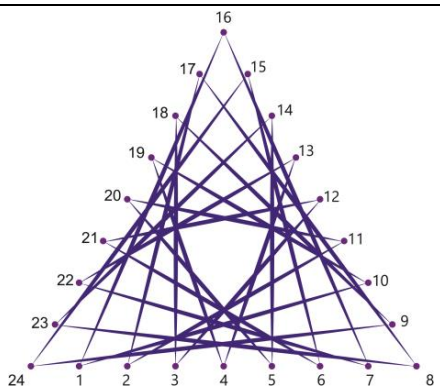


To finish off your stitching, tape the end of the thread to the back of the card and snip off any excess thread.

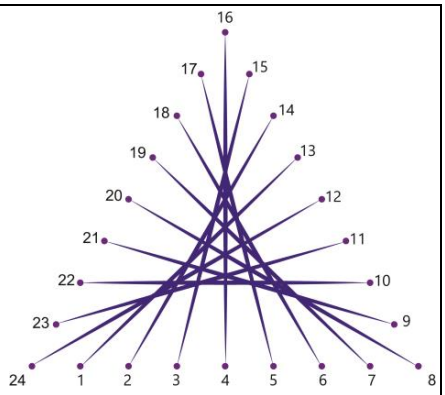
You can apply the same technique to all sorts of shapes and number patterns. Here are a few ideas to get you started.



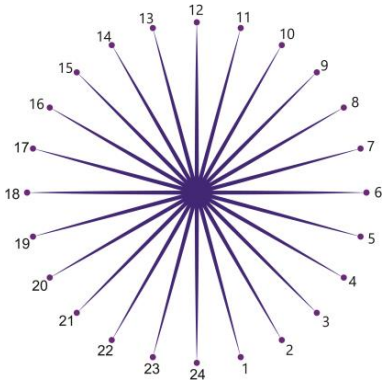
24 point square – add 7



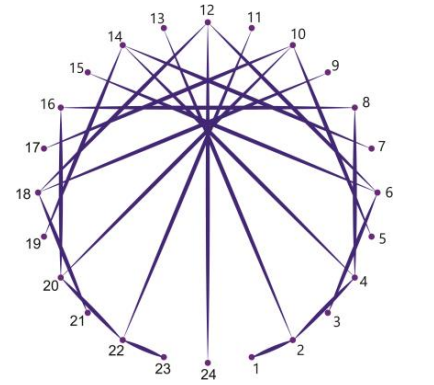
24 point triangle – add 9



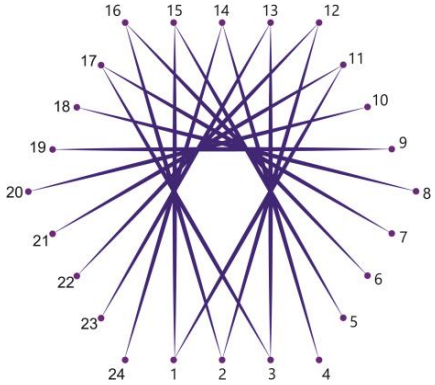
24 point triangle – add 12



24 point circle – add 12



24 point circle – multiply by 2



24 point hexagon – add 10 going from points 1 to 17 only