These patterns are used by Sikh and Hindu families to decorate their homes on important occasions.

You can design these patterns yourself using a ruler, pencil and squared – or square dotty – paper.

|  |  |  |
| --- | --- | --- |
|  |  |  |
| Construct a 10 × 10 grid.  Split the grid into eight sections as shown here. |  | Start with this section in the top left.  Using the squares as a guide, draw some lines. Be creative – there is no need to copy this example! |
|  |  |  |
| Now reflect your lines in the vertical dotted line of the grid |  | Next, reflect your lines in the horizontal dotted line of the grid |

|  |
| --- |
|  |
| Finally, reflect your lines in the diagonal dotted lines of the grid.  You should now have all eight sections of the grid complete. |

Questions:

* How many lines of symmetry does your Rangoli Pattern have?
* What is the order of rotational symmetry of the pattern?
* To create your pattern you reflected in the vertical, horizontal and diagonal dotted lines – in that order. What happens if you do it in a different order?
* Can you colour your pattern so that the symmetry is not destroyed?
* Can you colour in the pattern so that it no longer has line symmetry, but it still has rotational symmetry?
* Can you colour in the pattern so that it no longer has rotational symmetry, but it still has line symmetry?