

Reproducing Historic Patterns: Egyptian 7th Century BC Design

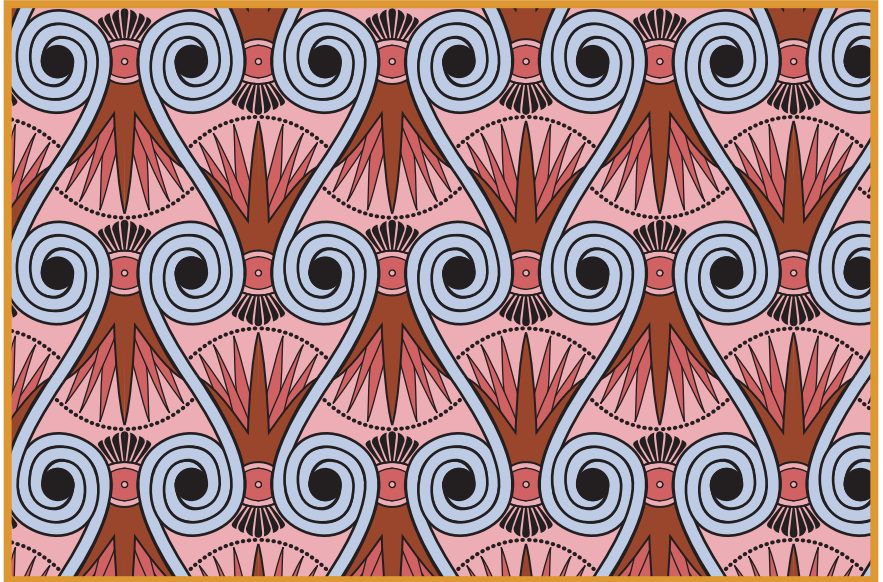
This file has embedded SymmetryWorks patterns. You can open it in Adobe Illustrator and experiment.

- 1 Before you can reproduce a pattern, you must determine its symmetry type. The Artlandia mini-tutorial "Figuring Out the Type of Symmetry" gives a detailed diagram of how to do this.

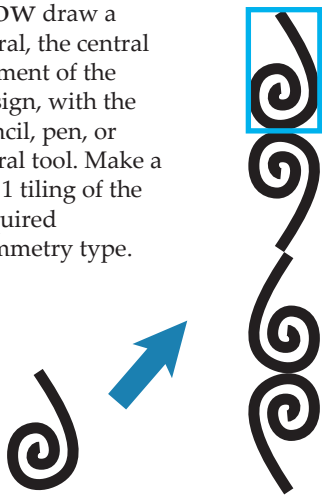
First ask whether the pattern will coincide with itself if you rotate it around some center by a certain angle. For the pattern on the right, such an angle does indeed exist and it is 180° (the rotation center can be any of the black dots). Therefore, you move to the second entry on the left of the diagram.

To the second question, Is there a reflection, the answer is "yes": a vertical reflection axis passes through the center of each Lotus trefoil.

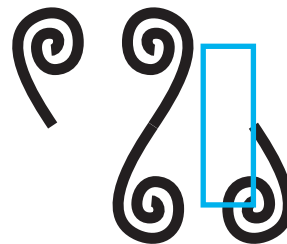
Because there are no mirrors in any other direction, you conclude from the diagram that the symmetry type is **Parallel mirrors & glide (pmg)**.



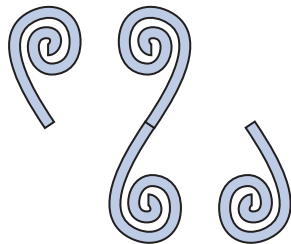
- 2 Now draw a spiral, the central element of the design, with the pencil, pen, or spiral tool. Make a 1×1 tiling of the required symmetry type.



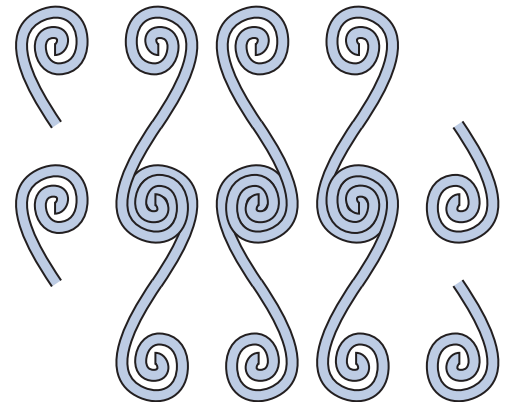
- 3 Observe that with the default orientation of the control path (highlighted in the preceding picture), the resulting mirrors in the pattern are horizontal, whereas you need vertical ones. Rotate the control path 90° counter clockwise and adjust the position, width, and height of the control path so that the upper-right spiral flows into the lower-left one.



- 4 Expand the spiral (choose Object > Expand... and un-check all the boxes except for Stroke). Apply an appropriate fill, stroke weight, and stroke color.



- 5 Delete the divides between the upper and lower spirals, by opening the tip of the seed spiral with the eraser tool. Increase the tiling size using the SymmetryWorks Options palette and interactively readjust the spiral and/or the control path as necessary. Add the Lotus leaves and other ornamentation details.



Pattern source: Peter Phillips and Gillian Bunce, Repeat Patterns: A Manual for Designers, Artists and Architects, Thames and Hudson, 1993, London, p. 123.