

# Sphinx Tiles

Designed by David Mitchell

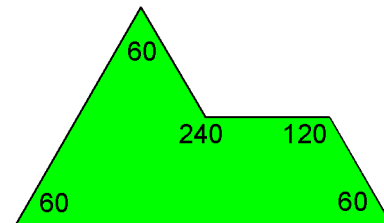
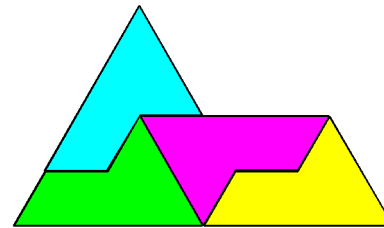
These diagrams show you how to fold Sphinx tiles from leftover rectangles but they can also be folded from any other strip of paper of similar proportions.

Leftover rectangles have sides in the proportion of  $1:\sqrt{2}+1$  and are easily obtained from silver rectangles by removing the largest possible square.

Silver rectangles have edges in the proportion  $1:\sqrt{2}$ . DIN paper sizes such as A4, A5 etc are good enough approximations of silver rectangles for practical paperfolding purposes.

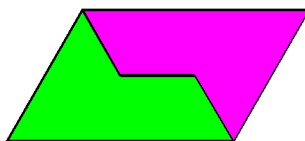
Although four tiles will go together to form a larger Sphinx this tile is not strictly a reptile, since one of the four tiles needs to be a mirror-image of the other three.

The Sphinx tile is a hexiamond, a shape that can be made by combining six equilateral triangles



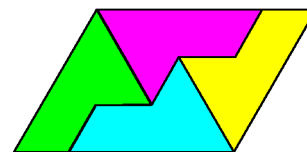
## Tiling patterns

1



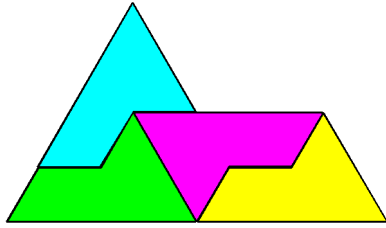
1. Since two tiles will go together to form a parallelogram, Sphinx tiles will tile the plane.

2



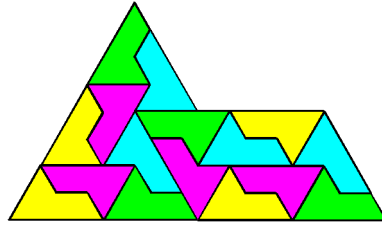
2. A more complex parallelogram can be made from two sets of mirror-image tiles.

3



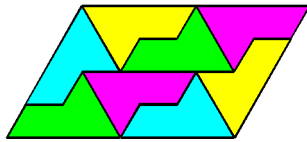
3. Four tiles will go together to form a compound Sphinx. One of these tiles must be the mirror-image of the other three.

4



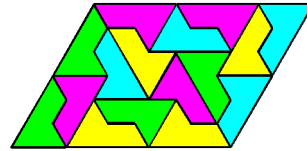
4. Four compound Sphinxes will fit together to form a more complex compound Sphinx.

5



5. Similarly, two compound Sphinxes will form a compound version of the parallelogram shown in picture 1.

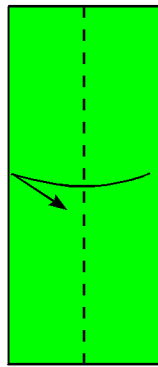
6



6. And four compound Sphinxes can be combined to form a more complex version of the parallelogram shown in picture 2.

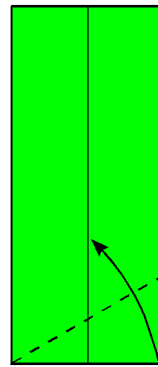
### Folding Sphinx tiles from the leftover rectangle

7



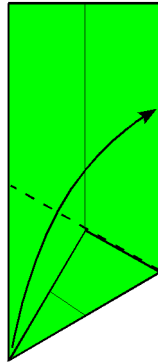
7. Fold in half like this, then unfold.

8



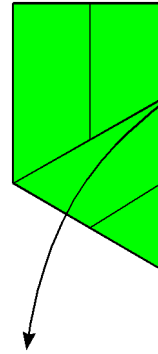
8. Fold the bottom right corner onto the vertical centre crease, making sure the bottom left corner remains sharp.

9



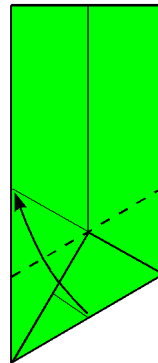
9. Fold the sloping bottom edge onto the right hand edge.

10



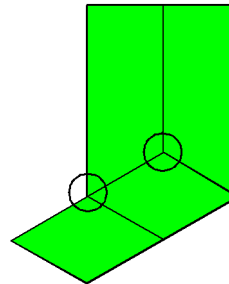
10. Open out the fold made in step 9.

11



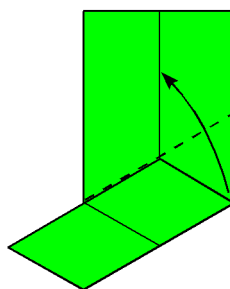
11. Fold the sloping bottom edge upwards like this. Make this fold softly at first.

12



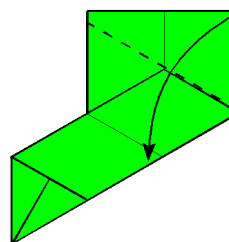
12. Make sure the new front flap is aligned like this before you flatten the fold.

13



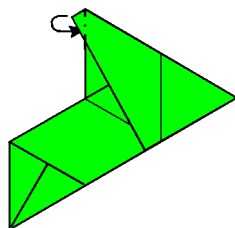
13. Fold the bottom sloping edge upwards again using the edge of the front layer to help you locate the fold accurately.

14



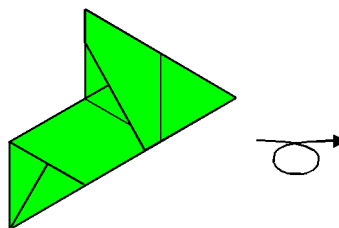
14. Fold the right edge onto the bottom sloping edge.

15



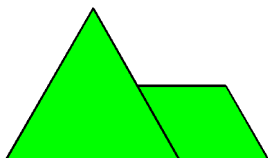
15. Fold the top tip of the front flap backwards around the edge of the layer behind it, then tuck it into the pocket between the other layers.

16



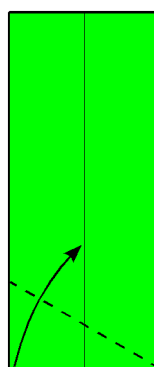
16. Turn over sideways and rotate to look like picture 17.

17



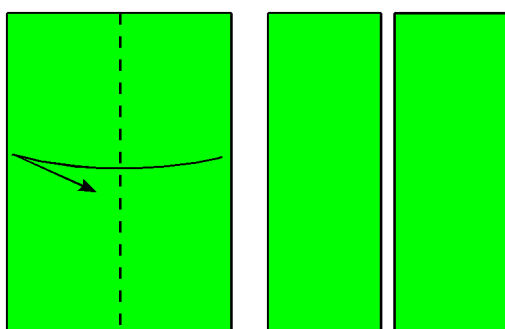
17. This is the finished tile.

18



18. To make mirror-image tiles either start like this and follow steps 9 to 16 in mirror-image or start with a finished tile, open it out completely and reverse the direction of all the creases.

19



19. If you do not have leftover rectangles suitable size strips can be made by dividing a silver rectangle or US letter paper into half like this. You will have to adapt the last part of the folding sequence very slightly if you do this.