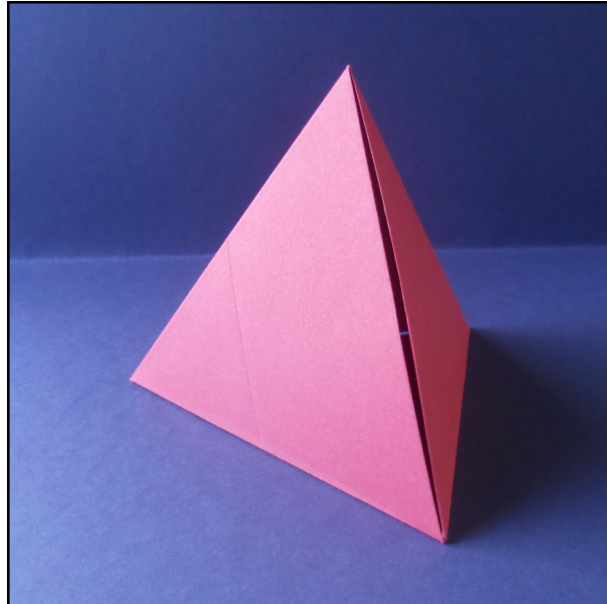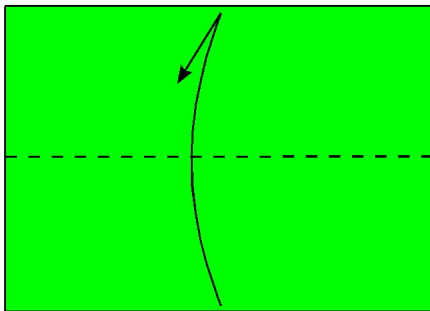# Pocket Tetrahedron

Designed by David Mitchell

This is basically a pure origami version of the famous fold that turns an envelope into a tetrahedron, but because both ends of the flat form are open it can also be made into a square section tube and then transformed between the three states, flat form, tube and tetrahedron.

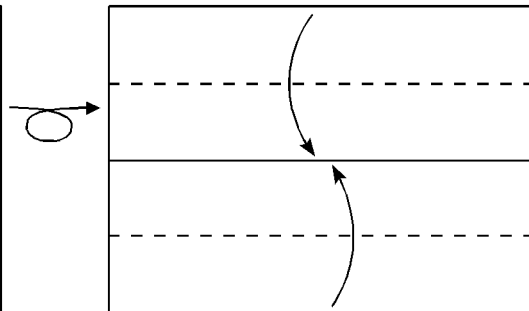You will need a single sheet of A4 or US letter size paper.

If you are using irogami begin folding with your paper arranged coloured side up.

1

2

1. Fold in half downwards, then unfold. Turn over sideways.

2. Fold both top and bottom edges onto the horizontal centre crease.

3

3. Fold the bottom right corner onto the horizontal centre crease making sure the crease intersects the top right corner exactly.

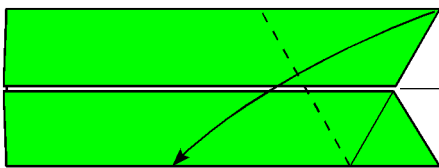**4**

4. Open out the fold made in step 3.

5

5. Fold the top right of the lower front flap onto the crease made in step 3 so that the new crease intersects the bottom right corner exactly, then unfold.
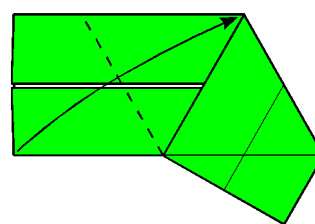
6

6. Fold the two small triangular flaps backwards in between the other layers by reversing the direction of the existing creases.

7

7. Fold the top right corner onto the bottom edge making sure that the new crease begins exactly from the point where the crease made in step 3 intersects the bottom edge.
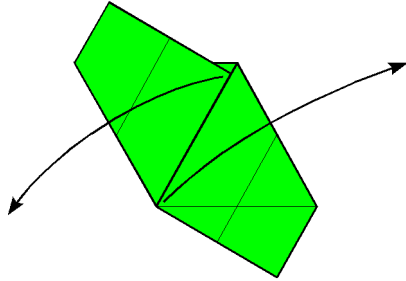
8

8. Fold the bottom left point onto the top edge so that the bottom edge lies along the sloping left edge of the front layer. Picture 9 shows what the result should look like.
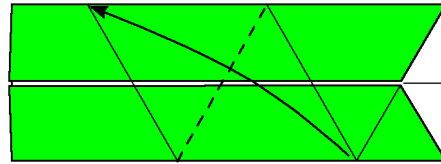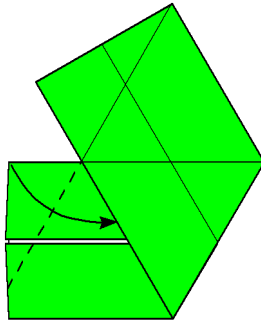
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9

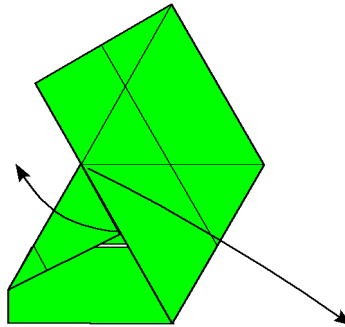9. Open out the folds made in steps 7 and 8.

10

10. Fold the paper like this so that the new crease runs between the ends of the creases made in steps 7 and 8.
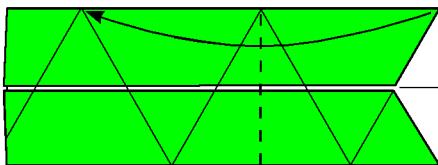
11

11. Fold the right hand part of the top edge of the back layers onto the sloping left edge of the front layers.
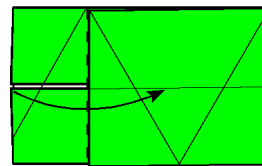
12

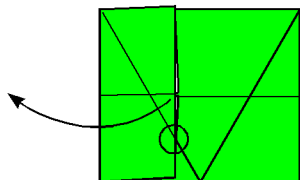12. Open out the fold made in step 11.

13

13. Fold the right edge inwards making sure the new crease forms in the position shown.
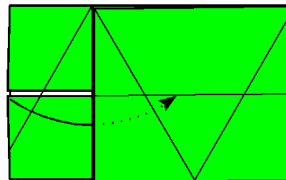
14

14. Fold the left edge inwards along the line of the left edge of the front layers.
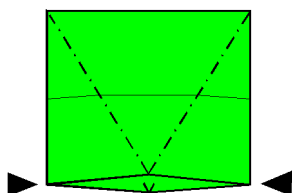
15

15. If you have done this accurately the creases should line up at the point marked with a circle. Adjust if necessary, then unfold.
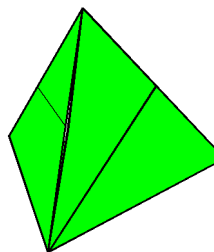
16

16. Remake fold 14 but this time tuck the left edge of the back layers inside the open left edge of the front layers.
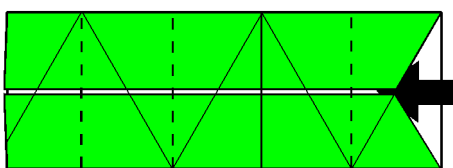
17

17. Open the centre of the bottom edge and bring the left and right and bottom corners together to form the tetrahedron. You will probably need to rework the creases to make the design look good.
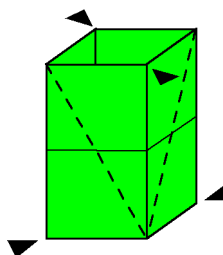
18

18. The Pocket Tetrahedron is finished. You can, of course, collapse it flat again for storage.

19

19. If you add the three additional creases shown here you will also be able to form the paper into a square section tube by inserting the left edge inside the pocket at the right.

20

20. This tube can be converted to the tetrahedron by closing the top and bottom in opposite directions. You may need to perform and reverse this move several times to get it working smoothly.

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