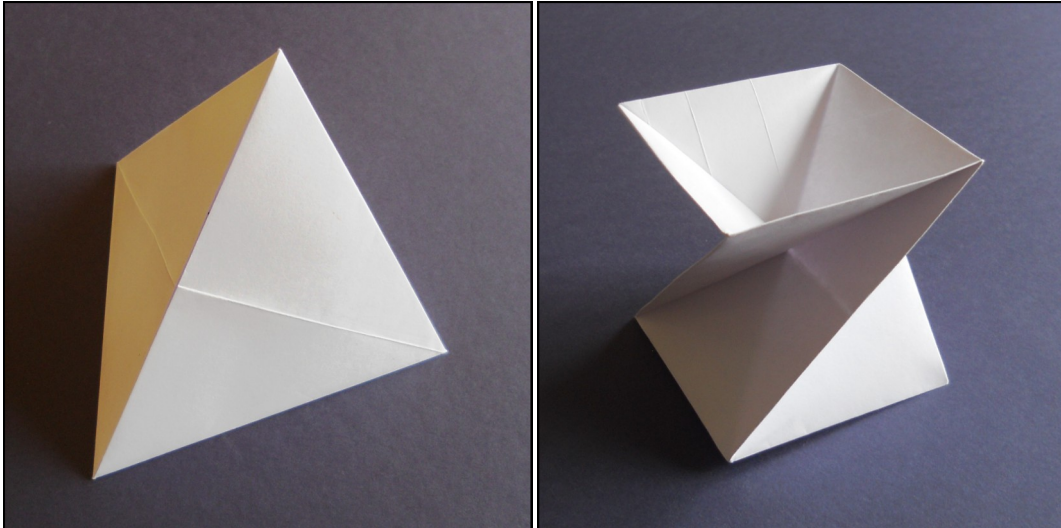


Pocket Rhombic Tetrahedron and Collapsible Cube

Designed by David Mitchell



Pocket Rhombic Tetrahedron

Collapsible Cube

The Pocket Rhombic Tetrahedron is a simple variation of my Pocket Tetrahedron design but which produces a Rhombic, rather than a Platonic, Tetrahedron.

The Collapsible Cube is a tube that twists into a cube, which will collapse flat for storage in two directions.

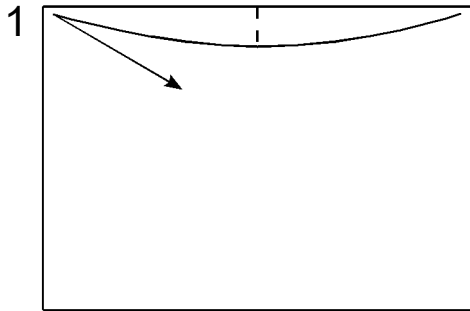
The diagrams are combined in one pdf because the pre-creasing sequence is the same for both.

The most elegant way to make these designs would be to use division into fifths, but I have used a different method here in order to make the folding sequence more accessible. The trade-off, however, is that the tube states do not hold together so well.

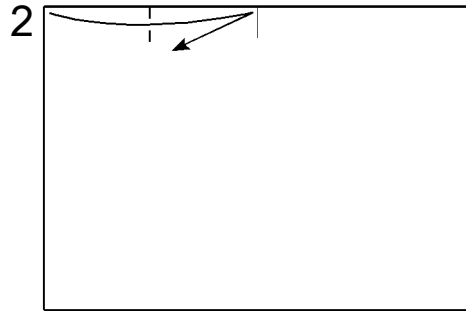
It is also possible to make these designs using several different modular methods.

Making the Pocket Rhombic Tetrahedron

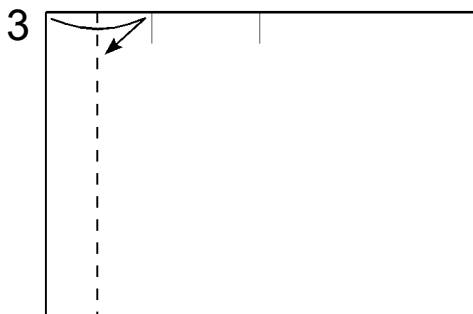
You will need a single sheet of A4 paper. If using irogami begin with your paper white side up.



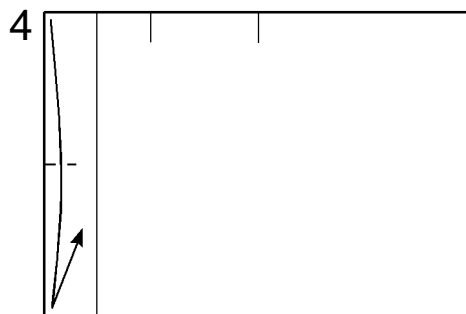
1. Make a tiny crease to mark the centre of the top edge.



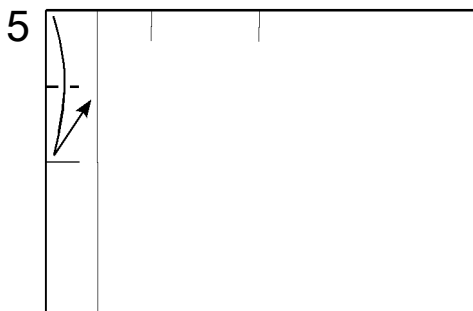
2. Make another tiny crease to mark the left quarter way point.



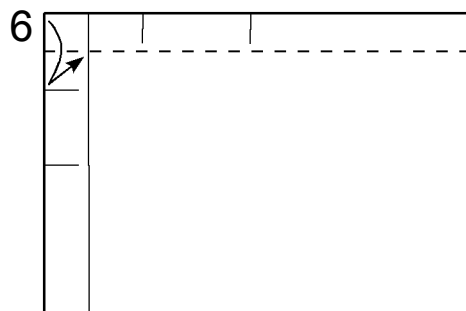
3. Fold the left edge inwards like this, using the tiny crease made in step 2 to locate the fold.



4. Make a tiny crease to mark the centre of the left edge.

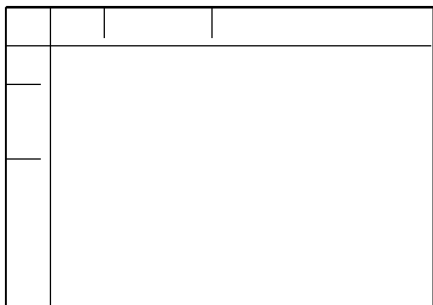


5. Make another tiny crease to mark the top quarter way point.



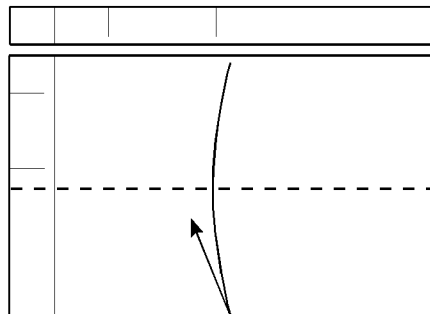
6. Fold the top edge downwards, using the tiny crease made in step 5 to locate the fold.

7



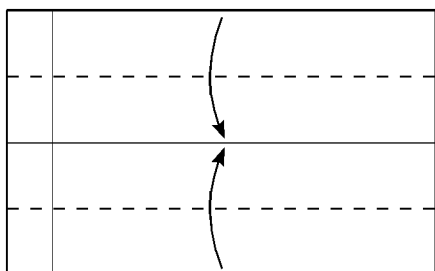
7. Cut along the horizontal crease to remove the top part of the paper.

8



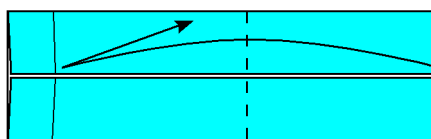
8. The top section of the paper is no longer required. Fold in the bottom section of the paper in half downwards, then unfold.

9



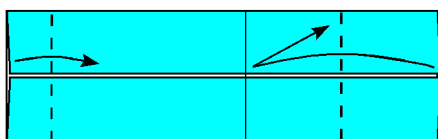
9. Fold the top and bottom edges onto the horizontal centre crease.

10



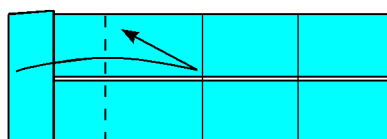
10. Fold the right edge onto the vertical crease, then unfold.

11



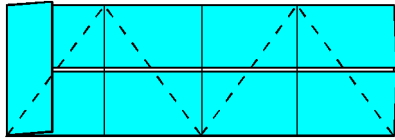
11. Fold right edge onto the vertical crease made in step 11, then unfold. Also fold the left edge inwards using the existing crease.

12



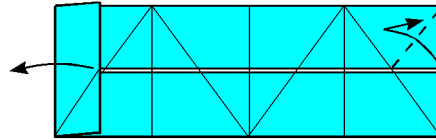
12. Fold the left edge onto the vertical centre crease, then unfold.

13



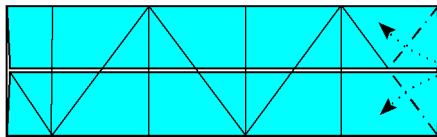
13. Make a diagonal crease across each of the four sections of the paper like this. Make sure these creases intersect the vertical creases at the edges as accurately as possible.

14



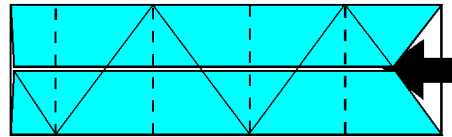
14. Open out the front flap. Also fold the bottom right corner of the top front flap inwards like this, then unfold.

15



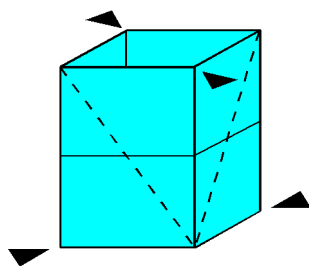
15. Fold both these small triangular flaps backwards in between the other layers by reversing the existing creases.

16



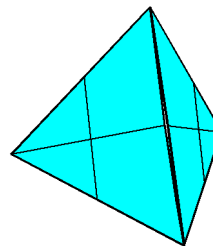
16. Use the vertical creases to form the design into a square section tube. Tuck the left hand flap into the open pocket on the right to hold the tube together. You can glue this flap in place if you wish.

17



17. Flatten the top and bottom of the tube in opposite directions so that the diagonal creases to form the edges of the tetrahedron. If you perform, then reverse, this transformation several times it will begin to happen more easily.

18

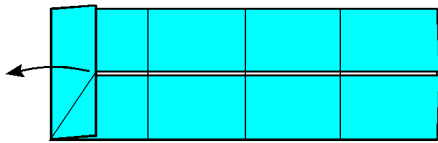


18. The Pocket Rhombic Tetrahedron is finished. You can turn it back into a tube or flatten it completely for storage. It is worth noting that the tube and the tetrahedron are both the same height.

Making the Collapsible Cube

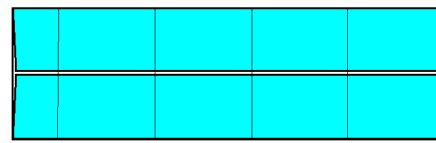
You will need a single sheet of A4 or US letter size paper. If using irogami begin with your paper white side up.

13



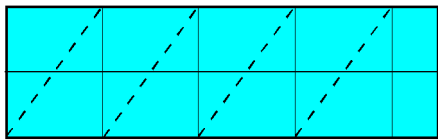
13. Begin by following steps 1 to 12 of the Pocket Rhombic Tetrahedron. Open out the front flap as shown.

14



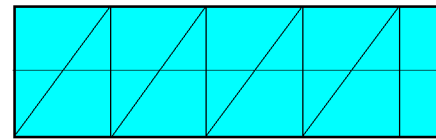
14. Turn over sideways.

15



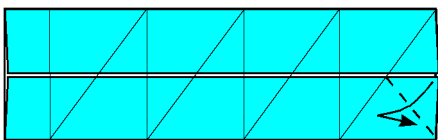
15. Make diagonal creases across all four sections of the design, like this.

16



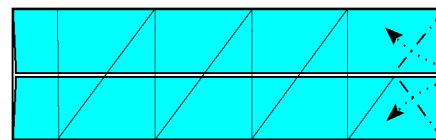
16. Turn over sideways.

17



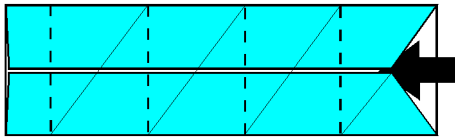
17. Fold the top right corner of the bottom front flap inwards like this, then unfold.

18



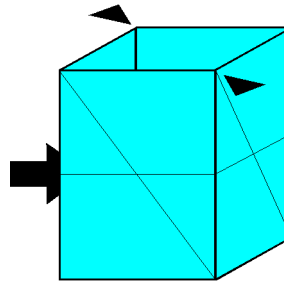
18. Fold both these small triangular flaps backwards in between the other layers by reversing the existing creases.

19



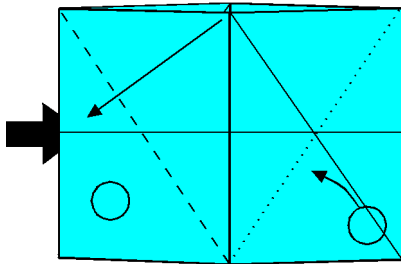
19. Use the vertical creases to form the design into a square section tube. Tuck the left hand flap into the open pocket on the right to hold the tube together. You can glue this flap in place if you wish.

20



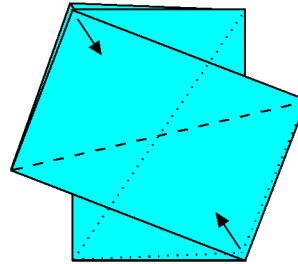
20. Make sure the open edge is in the position shown. Collapse the tube flat in the direction shown.

21



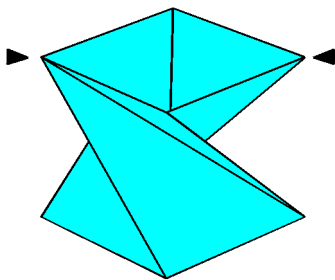
21. Remake the diagonal crease through all the front layers. Hold the left hand layers firmly together at the point marked with a circle. Push the bottom right corner upwards and to the right to collapse the design into the form shown in picture 21. Make sure the layers at the left side stay together as you do this.

22



22. The result should look like this. Open out the layers at the top and bottom of the design to form the cube. If you perform, then reverse, this transformation several times it will begin to happen more easily.

23



23. The Collapsible Cube is finished. It will also collapse flat in the opposite direction.

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