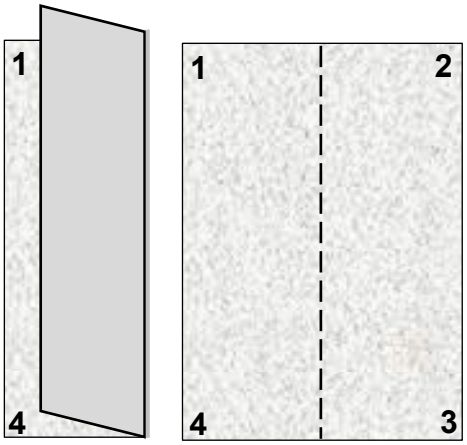
Folded Octahedron – Instructions
You need four sheets of A5 paper. You can use scrap paper, but decide which side of the paper will be on the outside of the finished model.

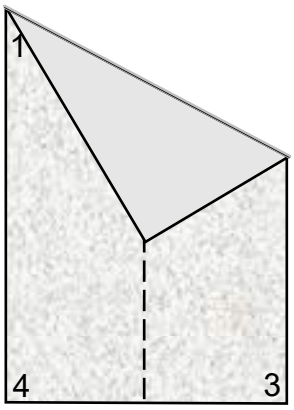
Step 1: Making the modules

Take the first sheet of paper.
On the side of the paper that will be inside the model, number the corners as shown.

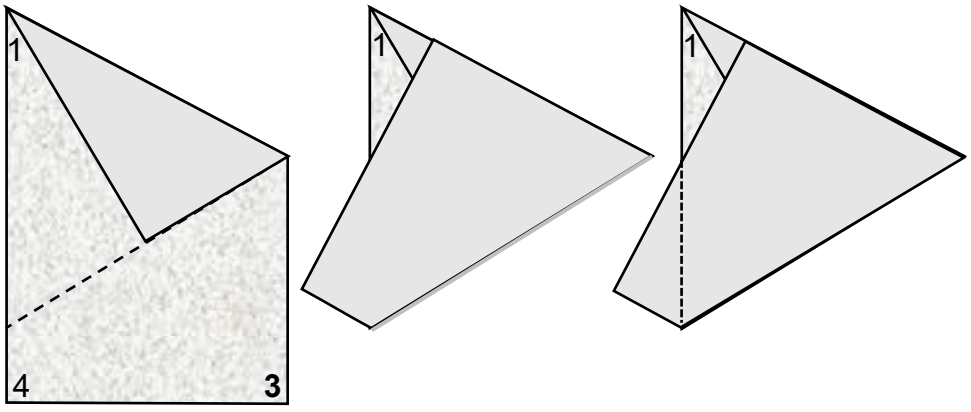
Fold the paper in half lengthwise, then flatten it out and draw the vertical fold line on the inner side of the paper.



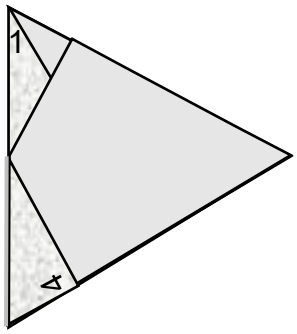
Fold corner 2 down so that it meets the vertical fold line.
You have made a quadrilateral with two right angles.



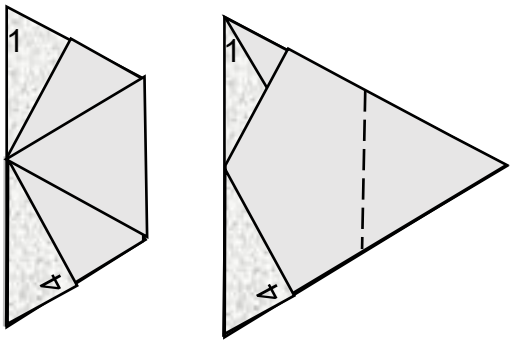
Fold corner 3 up to so that the right-hand edge of the quadrilateral runs along the sloping top edge.
You have made an equilateral triangle with an extra little triangle in the bottom left-hand corner.



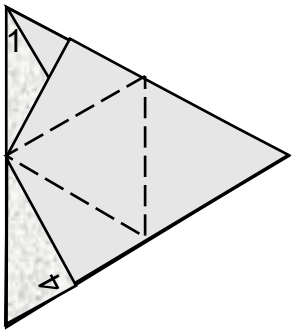
Fold the little triangle over.
You have made an equilateral triangle.



Fold the right-hand corner of the equilateral triangle over to make a trapezium. Pinch it down firmly. Unfold it again to make the equilateral triangle.



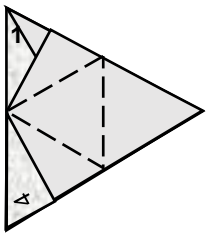
Now fold each of the other two corners of the equilateral triangle in turn. Pinch them down firmly, then unfold them again to get back to the equilateral triangle.



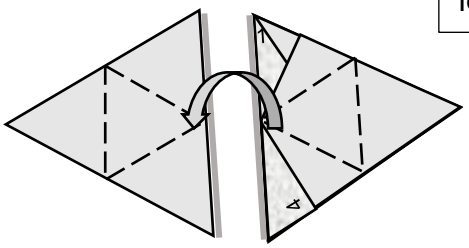
Now use the same instructions to make three more equilateral triangles with the other three A5 sheets of paper.
These will be the modules you will use to make the octahedron.

Step 2: Labelling the modules

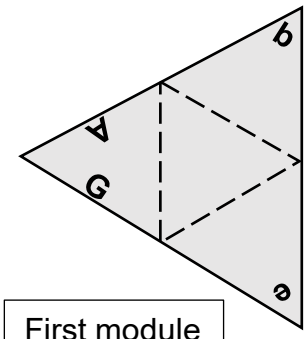
Place one of the modules exactly as shown.



Flip the module over along its **vertical** edge.

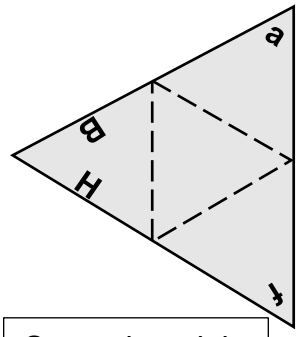


Now the outer side of the model is facing up.
Use a pencil to lightly write the letters A, G, b, e, exactly as shown.

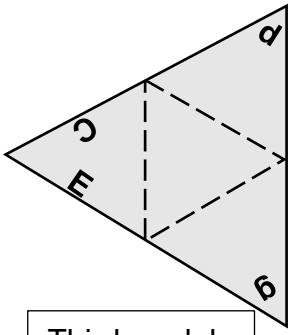


First module

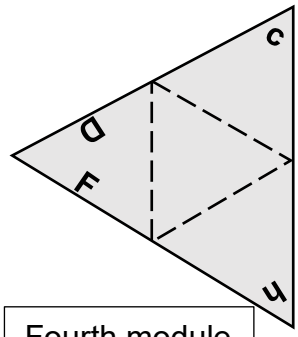
In the same way, flip each of the other three modules over along its **vertical** edge.
Use a pencil to lightly write the letters shown below.



Second module



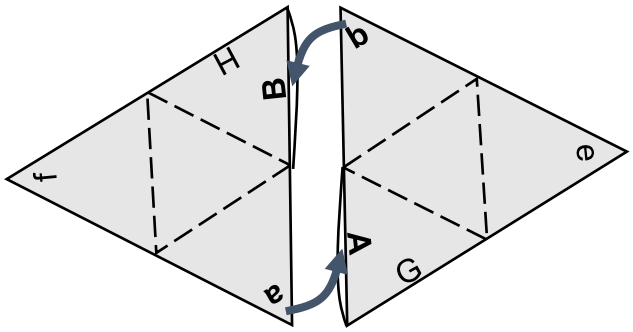
Third module

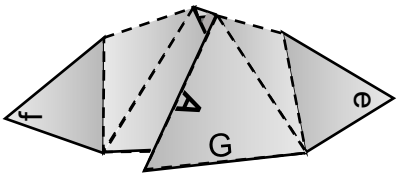


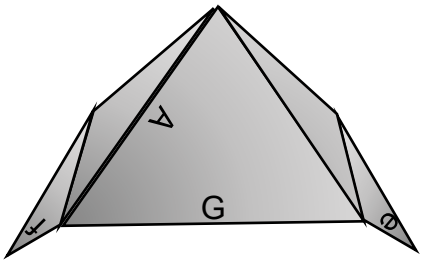
Fourth module

Step 3: Assembling the modules

Now look carefully at the first and second modules.
Note that the edge marked ‘A’ and the edge marked ‘B’ each provide a pocket.
The corner marked ‘a’ and the corner marked ‘b’ form flaps.
Partly fold bold both modules along the fold lines.
Insert flap a into pocket A, and flap b into pocket B.
Gently shuffle the two modules together until the two flaps are completely inside the pockets.







You have made a square-based pyramid, with triangular flaps e and f hanging down on either side. It looks a bit like Darth Vader’s hat.

Now look at the third and fourth modules.
Partly fold bold both modules along the fold lines.
Insert flap c into pocket C, and flap d into pocket D.
Gently shuffle them together until the two flaps are completely inside the pockets to make another square-based pyramid, with triangular flaps g and h hanging down on either side.

Finally, slide flaps e and f on the first square-based pyramid behind edges E and F on the second pyramid, and at the same time slide flaps g and h on the second square-based pyramid behind edges G and H on the first pyramid.
Gently shuffle the two square bases together until all the gaps close and you have an octahedron.