

GEOMETRIC DOMES (Make your own Eden project!)

by Andrew John Holland

From an easily made triangle template up to three geometric domes can be made using card from the recycling bin!

THINGS YOU WILL NEED

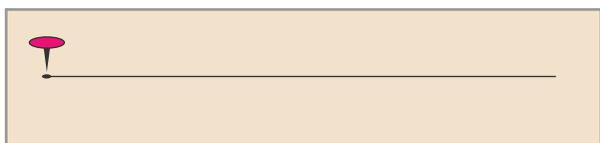
Ruler | Piece of card | Pencil | Felt tip/marker pen | Drawing pin | Scissors
Elastic bands/clothes pegs | Sellotape/Stapler & staples/Glue stick | Thread
The Triangle Template (on the next page) or make your own using a compass*
Card/thick paper (this can be from the recycling bin!)



* If you don't have a printer - you can make your own equilateral triangle template. You will need a compass to do this, but if you don't have a compass **you can make your own** with a piece of card and a drawing pin.
Watch Andrew's demonstration of how to do this here: *****
Or follow the instructions on the next page >>>

TOP TIP! MAKE YOUR OWN COMPASS...

1 All you need is a piece of thin cardboard (e.g. the side of a cereal packet)



2 Draw a line with a ruler, and use a pin to make a hole at one end. This will be your pivot point.

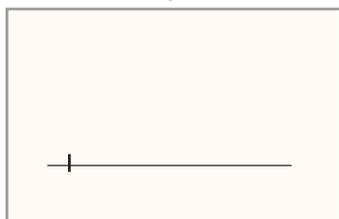
3 Measure along the line, to the size that you would like your triangle to be, and mark this point.



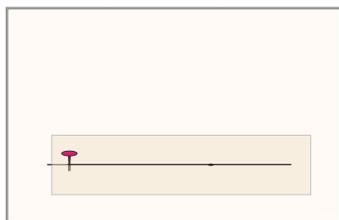
4 Make a hole where you made your mark - it needs to be just big enough to fit your pen/pencil through so that you can draw through it onto your paper below.

HOW TO USE THE COMPASS TO CREATE YOUR OWN TRIANGLE TEMPLATE

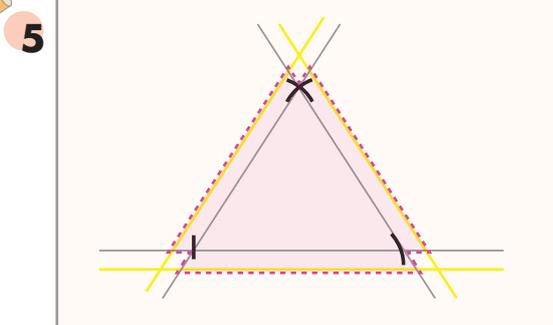
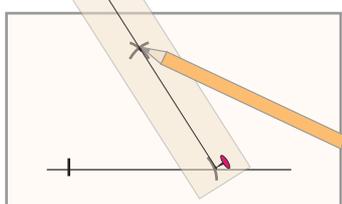
1 Draw a line on a piece of paper, and mark one point on this line.



2 Put the pin of the compass onto the mark you have just made.



3 Mark a second point on your line. Pivot the compass to make an arc above your line. Then swap the compass to the other side to make a second arc. Now you have the 3 points of your triangle.

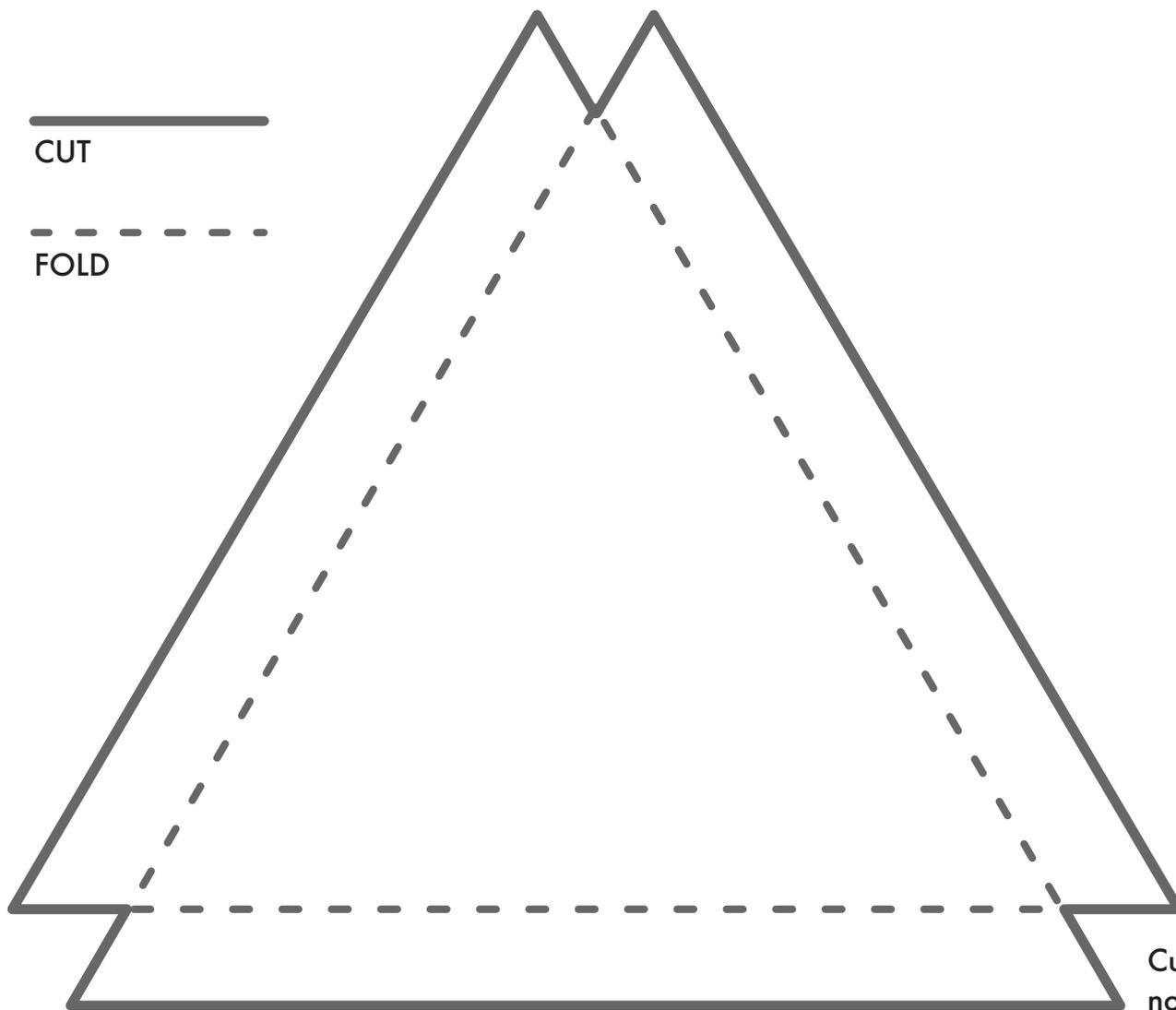


Use a ruler to join up your 3 points. Make sure you extend your lines beyond the points. (Shown above in grey). Then measure an extra 1cm all round your shape, and use your ruler to draw these lines in. (Shown above in yellow). The triangle template shape that you need to cut out is indicated in pink. You need to cut around the area shown by the dotted line.

TRIANGLE TEMPLATE

CUT

FOLD



Cut out the notch shape at each corner.

HOW TO MAKE AN ICOSAHEDRON!

1 You are aiming to make 20 triangles - so you need to draw round your template 20 times.

You can use different coloured papers for your triangles, or just one - it's up to you!

Cut out your twenty triangles (remembering to cut out the notch shape at each corner).

Then fold each edge along the dotted lines (shown in the template) to create a flap on each side of all of your triangle shapes.

You're aiming to end up with a pile of triangles - something like this...



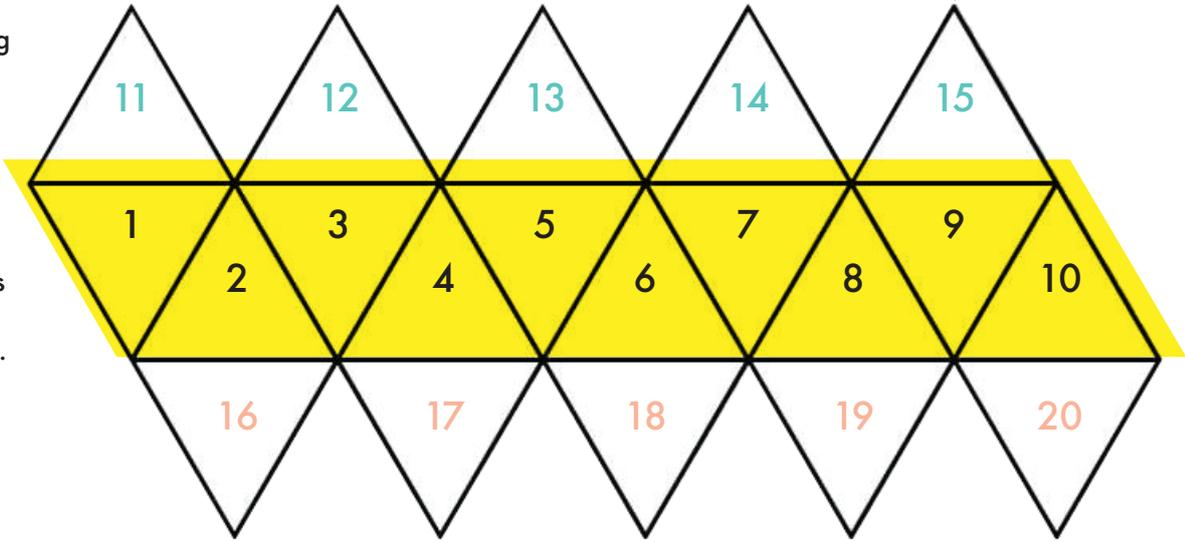
mmdmorecambe

MAKE MY DAY! @HOME

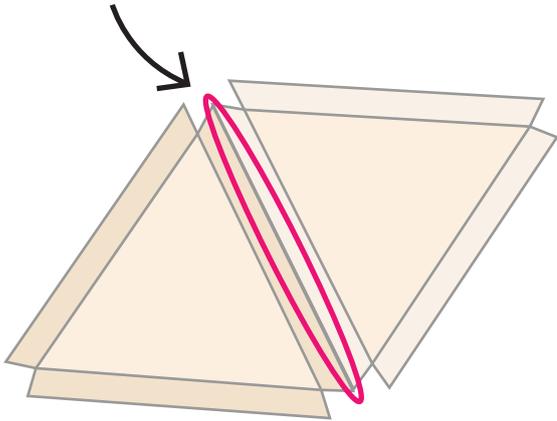
Sun 9 Aug

2 This is the layout plan that you need to follow to construct your icosahedron!

First, we are going to join up our single triangles to make the middle band of 10 triangles. Then we will join the top 5 triangles to this band, and then the bottom 5.



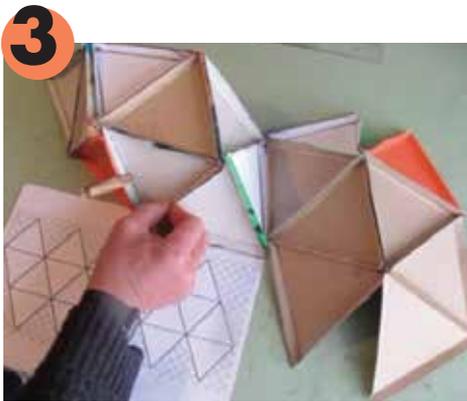
The best way to join the triangles together is to use elastic bands.



Place two triangles side by side, with a flap from each triangle folded upwards so that they are touching. Put your elastic band into the notch on one side - then stretch it over to the notch on the other side. This will secure the two triangles together.

Attach all your 20 individual triangles together in the order that they are numbered in the diagram shown above. Sometimes when you are attaching the top and bottom 5 triangles to the central band, you will need to lift the shape up to be able to wrap the elastic bands between the notches of the triangle more easily.

When you have joined up all 20 triangles you should have a shape that looks just like the diagram at the top of this page!



Now we need to join this up to make the 3D icosahedron. The best way to do this, is to join the 5 top triangles together with elastic bands and then join the 5 bottom triangles together. As you do this, you will see your 3D shape begin to form!



Once the top and bottom 5 triangles are joined together - the icosahedron is almost finished.

You just have 3 more triangles to join with elastic bands to complete your shape. Hooray!



Once you are happy with your shape you can secure it with staples, glue or sellotape, and add decorations to it too, if you like.

Attach a piece of thread or string to one of the corners, and hang it up in your window.

You are not limited to only making this shape you can use the templates like lego bricks to create and invent your own. You could make them different sizes making them from large cardboard boxes and try out different materials.

If you would like another challenge watch ***** to learn how to make a dodecahedron.

ANDREW JOHN HOLLAND

"I like sharing my enjoyment of painting and drawing. I also like simple geometry which can make beautiful constructions."

You can see some of Andrew's work on Instagram  [andrewjholland1806](https://www.instagram.com/andrewjholland1806)



HOPE YOU ENJOYED CREATING YOUR OWN MINI-EDEN PROJECTS!

IT'S AMAZING WHAT YOU CAN MAKE FROM SOME CARDBOARD BOXES AND A FEW ELASTIC BANDS, ISN'T IT?!



MAKE MY DAY! @HOME

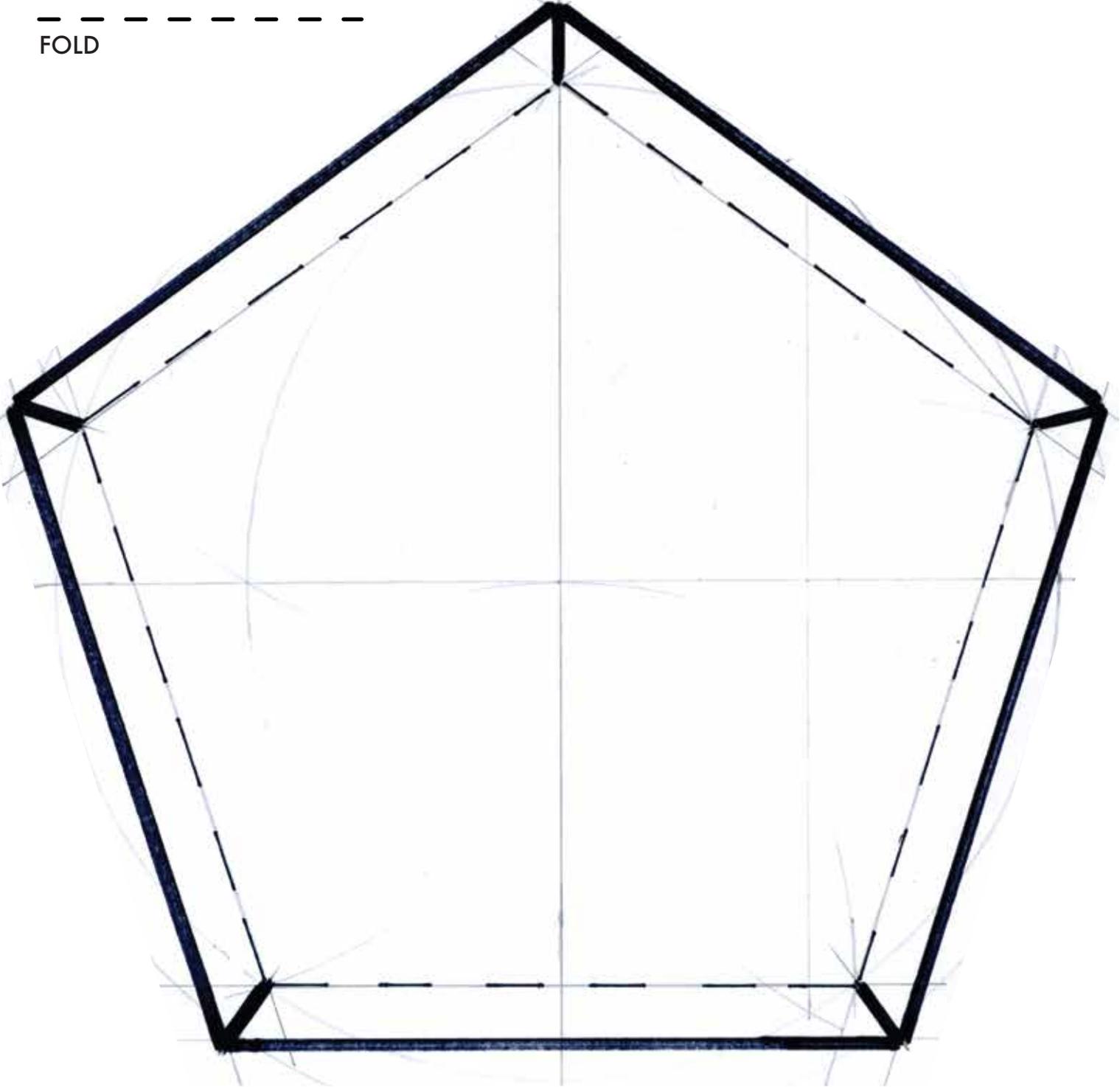
 Sun 9 Aug

PENTAGON TEMPLATE

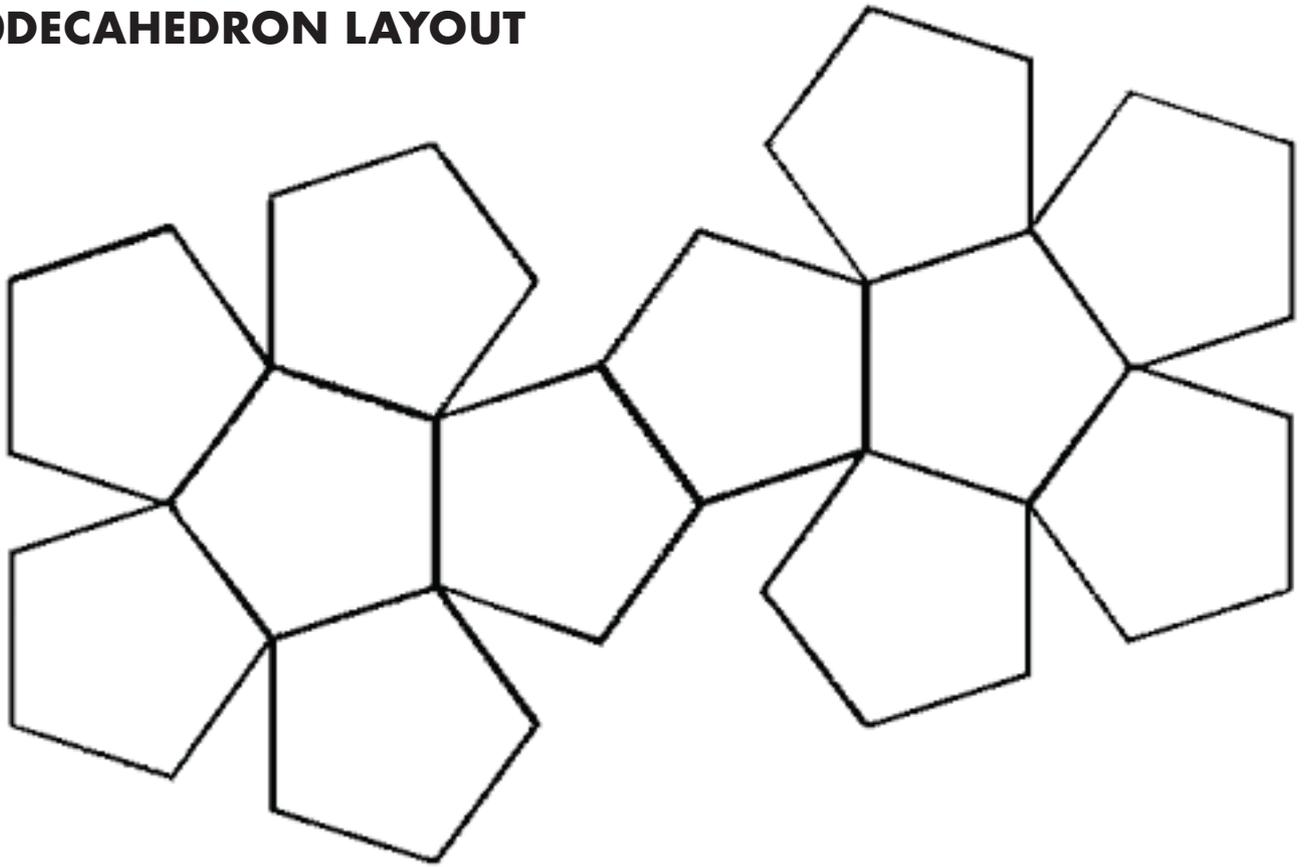
CUT

FOLD

Cut a slit down to the fold at each point.



DODECAHEDRON LAYOUT



ICOSIDODECAHEDRON LAYOUT

