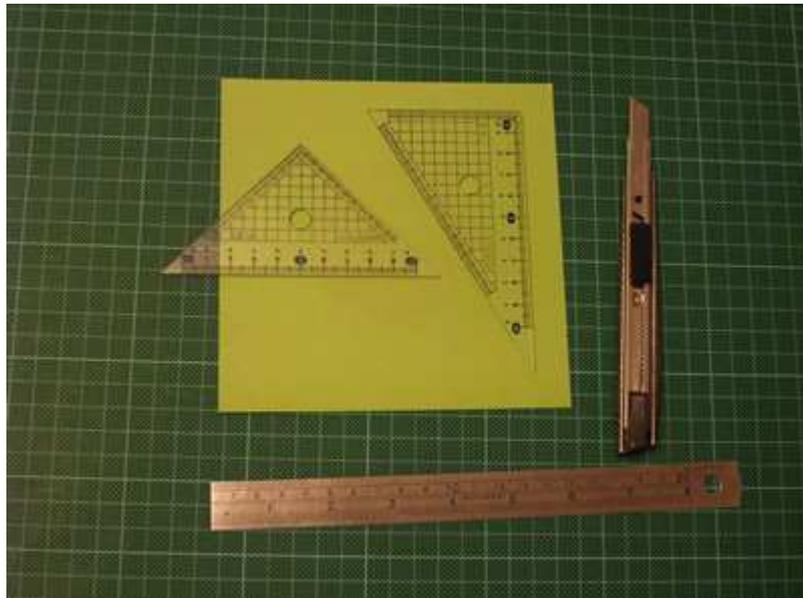


## How to cut a true regular hexagon in the fastest way.

Apart from squares, rectangles and hexagons are most commonly used in origami. If you are keen on folding flowers, then hexagons would always be the choice. There have already been a number of methods regarding how to cut regular hexagons. However, they almost invariably involve folding the paper in multiple layers, which would result in inaccuracy. The following method was devised by me just about a year ago when I felt the urge to get a quick and easy way of cutting a true regular hexagon in order to fold the flowers requiring a hexagon to start. Although this method is very fast and easy, by which a true hexagon can be produced within a minute, its accuracy is absolutely stunning, which I believe it's a record. In addition, there's no need to start with a true square with this cutting method. Only an approximate square will do.

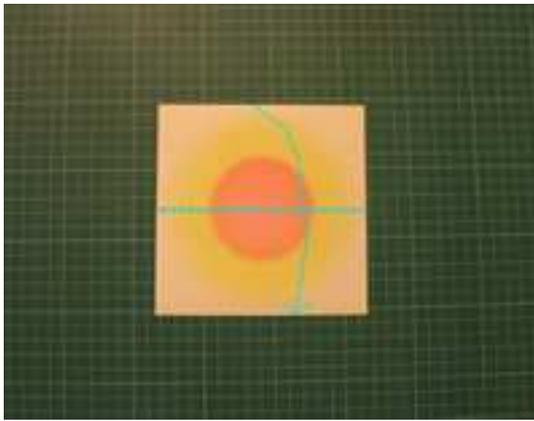
### A) Tools

Basically, they are the same as used by those in making a true square as described before. However, this time the one really in need is the  $30^\circ / 60^\circ$  set square, more exactly the  $60^\circ$  angle. As hexagons are mainly used in folding flowers, boxes and stars, they are usually made from those ready-made origami papers with side length 15 cm or less. So we have to use another set of tools of smaller size. The  $30^\circ / 60^\circ$  set square I'm using is about 14 cm on the slanted side while the steel ruler is 20 cm in length. In addition, we can use this set of tools to correct those ready-made origami papers which are not true regular squares. With this method, we can start from paper of any size. We only need an approximate square to start with. It won't affect the overall accuracy of the end product. However, for the sake of simplicity, we start with a ready-made true square.

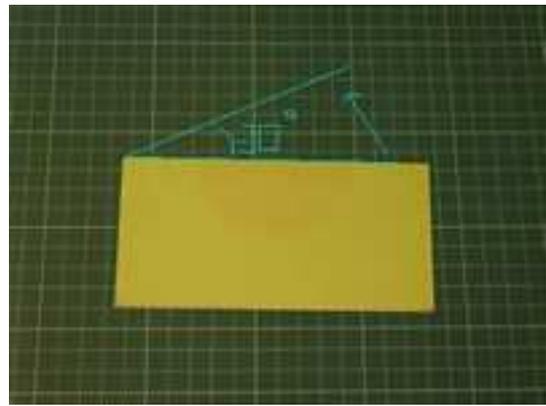


### B) Procedures

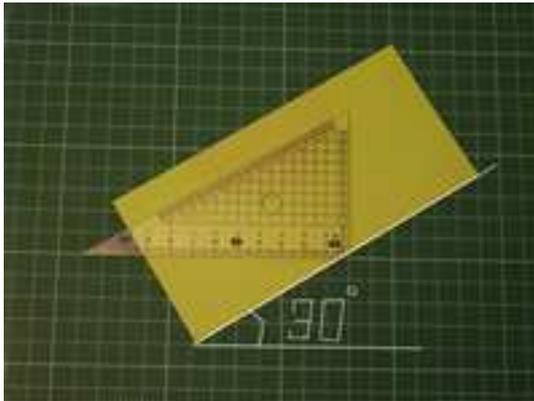
1/ First, fold the square in half, bringing the upper side to the lower. Crease firmly and then turn the paper anti-clockwise about  $30^\circ$  as shown in the photo. This only aims to facilitate cutting in a comfortable way.



a)

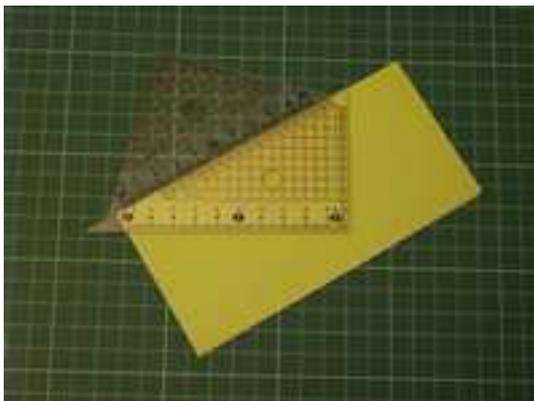


b)



c)

2/ Place the slanted edge of the  $45^\circ$  set square against the slanted edge of the paper's with its tip about 3cm away from the right to corner of the paper. Then place the slanted edge of the  $30^\circ / 60^\circ$  set square against the  $45^\circ$  set square's with the  $60^\circ$  angle facing upward. The  $60^\circ$  tip should be a little bit beyond the  $45^\circ$  tip.



3/ Place the steel ruler against the vertical edge of the  $30^\circ / 60^\circ$  set square. When true close contact is assured , cut away the paper on the right side of the ruler. A true  $60^\circ$  corner is then formed. Then turn the left side of the paper over to the same position as before and repeat the previous procedures.



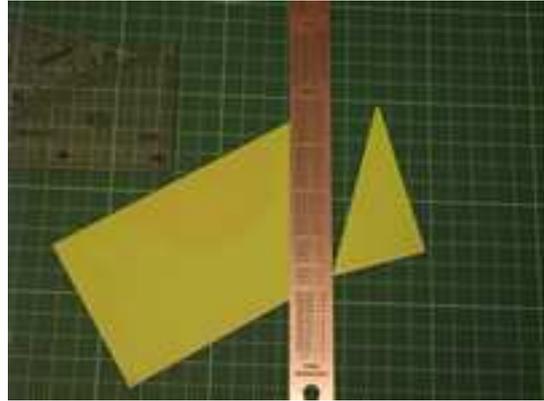
a)



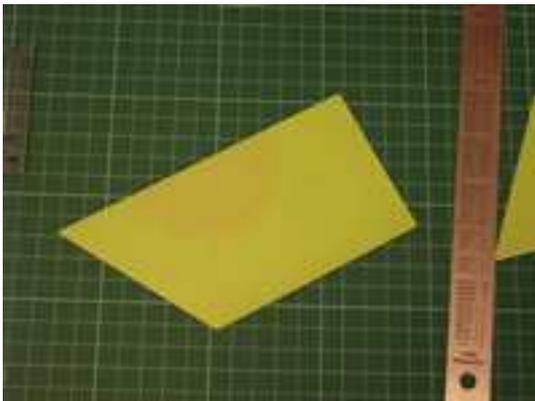
b)



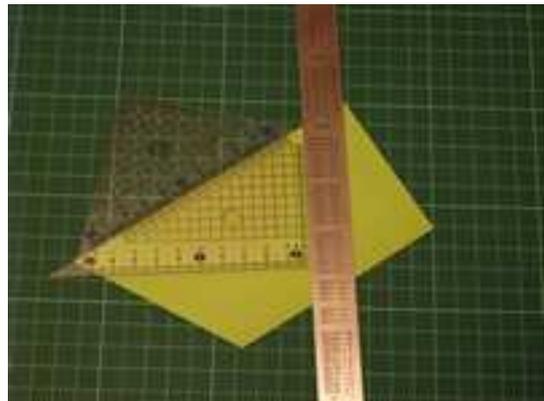
c)



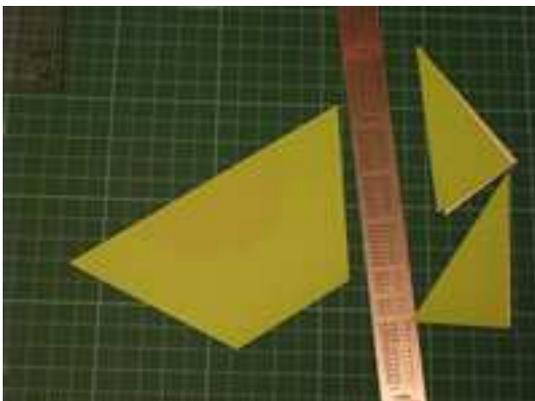
d)



e)



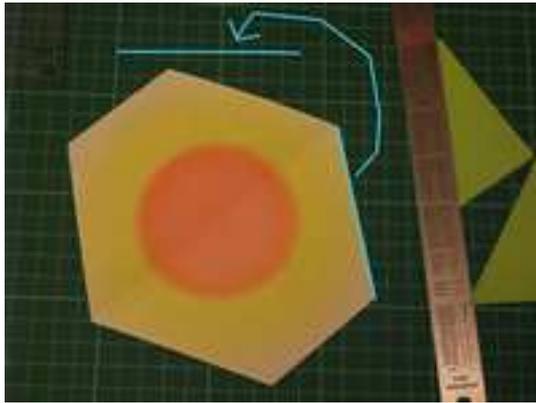
f)



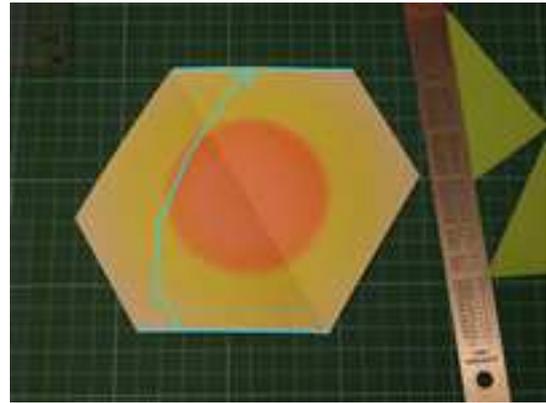
g)

4/ When finished , open the paper. You will see a diagonal sloping downward from right to left. On both sides of the right top end point of the diagonal are two previously cut edges.

Now turn the edge on the right side of the end point anticlockwise to a horizontal position as shown in the photo. Now the diagonal is seen sloping downward from left to right.



a)

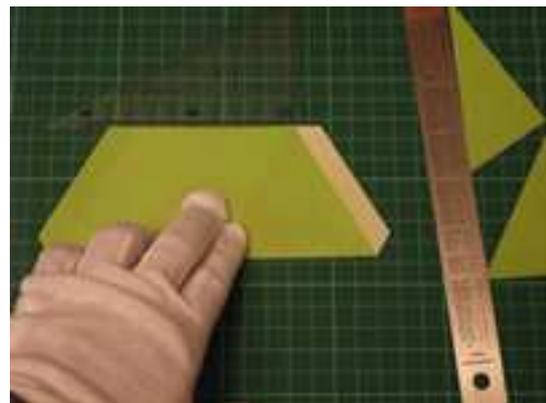


b)

5/ The upper edge and lower edge joined by the diagonal are parallel to each other. Now bring the lower edge to align with the upper edge as shown. This is the most crucial step governing the overall accuracy. With a little bit of patience and care, this can be achieved easily and accurately. Or you may use the straight edge of the set square to help. Then, crease firmly.

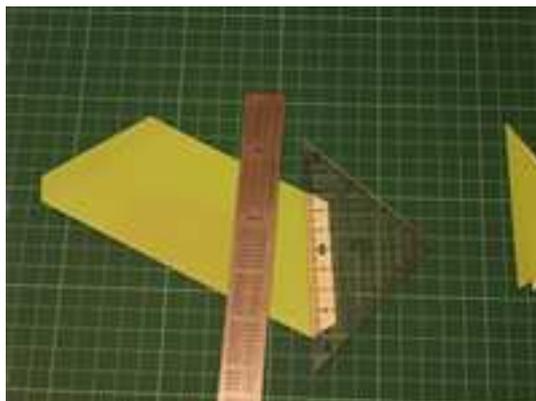


a)



b)

6/ Now you will see the lower layer of the paper protruding from the upper layer on the right side of the paper. Then turn the right edge into a vertical position and place the slanted edge of the 45° set square against the edge of the upper layer. Hold it firm with your right hand. Then place the steel ruler against the slanted edge of the 45° set square. Finally, remove the set square and cut off the extra lower layer as shown.



a)



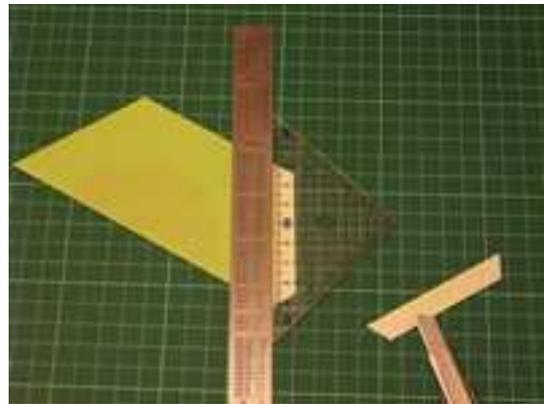
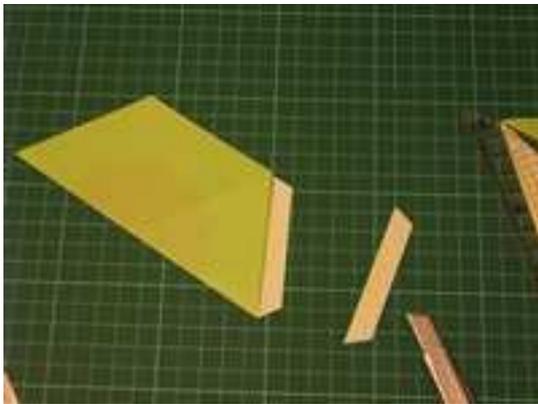
b)



c)

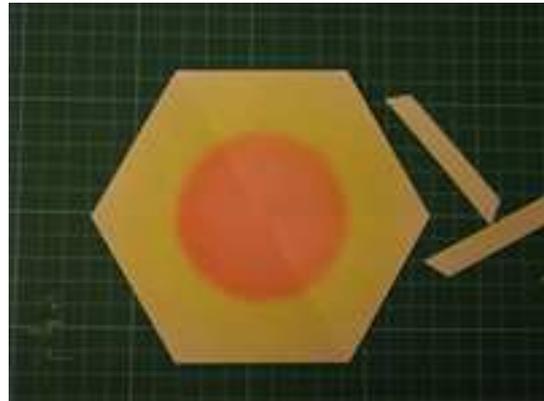
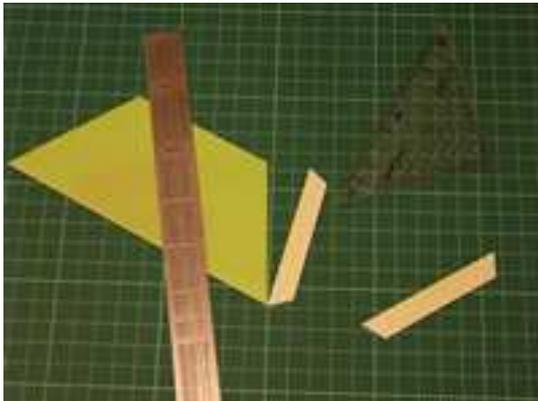
d)

7/ Now turn the left portion of the paper over to the same position as before. Repeat the previous procedures. Afterwards , open the cut paper and a beautiful true regular hexagon is obtained.



a)

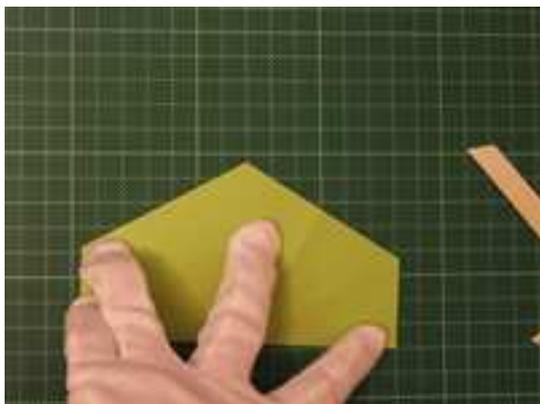
b)



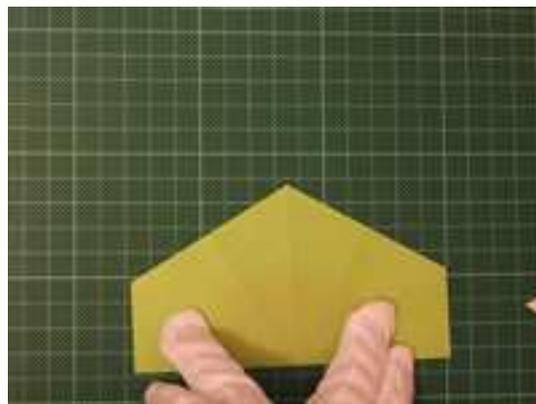
c)

d)

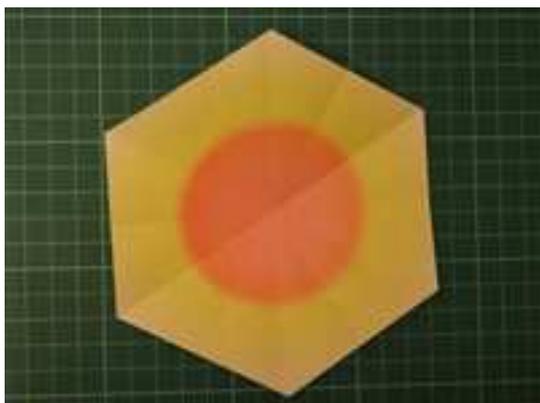
Note : To test if the hexagon so formed is a true regular hexagon , you can fold along the axes of symmetry. Actually these crease lines are also needed as a rule. If the upper layer and lower layer overlap each other completely in all cases , then it proves itself a true regular hexagon.



a)



b)



c)

[ END ]

*Gabriel Vong' s Ori-Scope*

*By Gabriel Vong 2009*