Mobius Magic

August Ferdinand Mobius was a 19th century astronomer and mathematician who was fascinated with the strange properties of what is now known as the Mobius Strip (or Mobius Band)

You can make a Mobius Band by taking a long thin strip of paper and gluing its ends together – but giving it a single twist before sticking end to end.

The Mobius Band has some strange (and magical!) properties.

Unlike a normal loop of paper (which has 2 sides), a Mobius Band has only one side. To prove it, place a pencil on one side of the paper and draw a continuous line along the length of the band. You will find that the line joins up with itself – even though you have not turned the paper over!

Unlike a normal loop of paper (which has 2 edges) a Mobius Band has only one edge. To prove it, use a pair of scissors to "feather" one edge (make a lot of little cuts so that the edge is ragged – or feathery.) You will find that the feathered edge eventually joins up with itself – showing that there is only ONE edge.

An even more fascinating thing occurs when you cut down the middle of the band – dividing it into two bands of equal width …. or whatever!

Try cutting the strip in such a way that it is reduced to one THIRD of its original width. The results are perplexing, to say the least.

Once you have made a start – don't stop there. Try giving the paper two twists before gluing – or three! What happens now when you try to cut it into two equal bands – or three?

You can use the following chart to keep track of your experiments.

Number of twists	Number of edges	Number of sides	Shape when cut into 2	Shape when cut into 3