

Möbius strip

You need:

1 x strip of paper.

Glue.

1 pair of scissors.

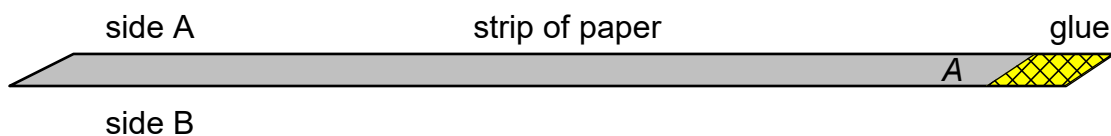
Pencil/pen

Risks.

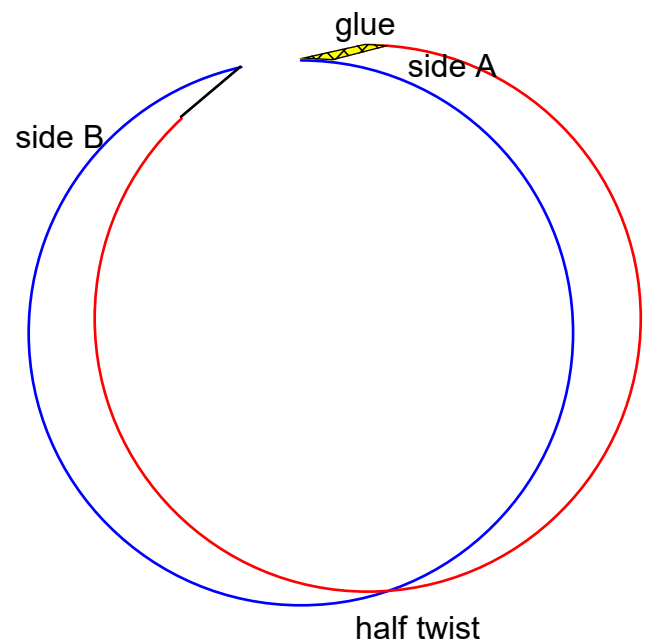
Cuts from scissors. Stab injuries from scissors. Paper cuts.

Method.

1. Take the strip of paper and put some glue onto the one end.
This is side A of the paper.
Write the letter A near to the glue.



2. Bring the two ends of the strip together but before sticking, turn the end without the glue over and then stick together.
Side A of the paper is stuck onto side A of the other end.
This gives the loop of paper a half twist.



3. Take a pencil and draw a line along the middle of the strip on side A until you return to where you started.
Since you started to draw on side A, and did not break your line, side B should not have a line drawn on it. What has happened to side B?
How many surfaces does the paper loop have?

4. Take a different coloured pencil and draw a line along the edge of the strip on side A until you return to where you started.
Since you started to draw along just the one edge of side A, and did not break your line, there should not be a line next to the other edge.
What has happened to the other edge?
How many edges does the paper loop have?
5. Use the scissors to cut along the centre of the strip.
What is the result?
- 6). Make up a new loop of paper with a half twist.
Use scissors, cut round the loop again, but this time one third of the distance from the edge instead of the centre.
What is the result?

How it works.

Putting the half twist into the paper strip before gluing makes the paper loop have just one surface and one edge.

When the loop is cut in half, every part from the one side of the cut associates with every part from the other side of the cut. The result is a single loop with two half twists.

When the loop is not cut in half but to the one side, you are effectively cutting off the edge of the loop, which forms a single loop with two half twists but this is looped through the original half twist loop, which is still present, just narrower.