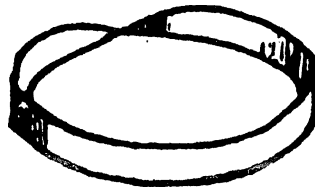A remarkable discovery by German mathematician and astronomer, August Mobius, was a circular geometric figure that has only one side and one edge, now called the Mobius strip.


Make several Mobius strips by cutting narrow rectangular pieces of paper and attaching the ends with a half twist, full twist, and one and a half twist. On the Mobius strip of the half twist, put your pencil down midway between the edges and draw a line down its center like a highway center line. Cut the strip along the line you have drawn. What is the peculiar result? Draw a line on the resulting strip and cut as before. What has happened now? Cut one of the Mobius strips in a similar way, but one third of the way from one edge to the other. What is the result?

Explore the results of variations on this exercise. Cut three large crosses and tape the ends of one together straight, tape the second with a half twist in one loop and tape the third with a half twist in both loops.
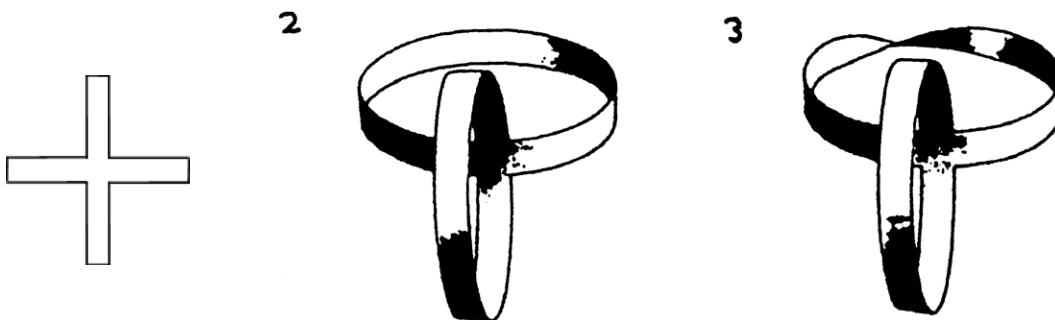
Cut out a strip of paper three centimeters wide and as long as possible. Fold the strip in half and cut 2 slits as shown below.
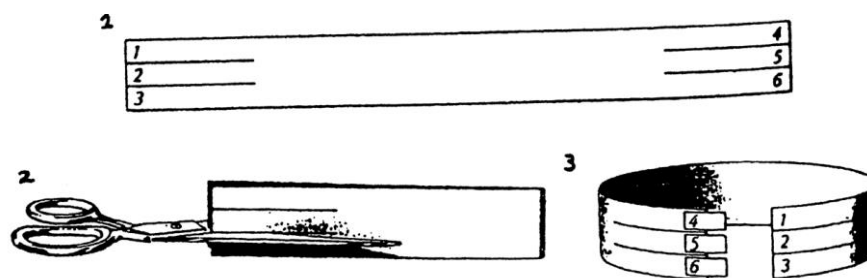
Unfold the strip and number as shown on card 2. Tape 4 to 1. Pass 5 over 4, 2 under 1, and attach together. Pass 6 between 4 and 5, pass 3 over 1, and attach together. Finish the cuts all the way around. What is the result? Vary the steps by turning some ends over before attachment. (From Mathematics: A Human Endeavor by Harold Jacobs) What conclusions can you draw from all of this?

Make a display using step-by-step models to explain what you have done and your findings. Include descriptions and labels to make the project self-explanatory.