BREWING UP SOME STEAM

MOBIUS MATH ART

What is a Mobius Strip?
It's a one-sided, infinite loop with neither a top or bottom!
Let's explore where math meets art...

Materials You Will Need:

- paper
- tape
- scissors
- pencil

DIRECTIONS

See the instructional video on the York Public Library YouTube Channel yorkpubliclibrary.org

1. Start by folding a piece of paper into sections the long way. Cut along your folds to create strips. Makes about 8 strips out of a sheet of paper.

2. Take a strip and mark 2 X's like this on the ends.

3. Twist the ends of the strip so the X's are on top of each other and tape them together. Your loop should look like the pic.

This is a Mobius strip.

Activity from: steamexperiments.com

4. With your pencil, draw a line down the middle of your loop making a continuous line until you reach the starting point. Take your scissors and cut down this line.
Predict: What do you think will happen when you separate the loop? What happened? Did you get 2 loops or one continuous loop?

Take this further:

- Make another Mobius strip. Instead of cutting down the middle, start your cut about 1/3 of the way from the edge. What happens?
- Make more Mobius strips and experiment with the number of twists. Instead of once, twist it twice! Cut down the center and see what happens.

What is happening?
Möbius strips are named after German mathematician August Ferdinand Möbius who discovered the non-orientable band in 1858. A non-orientable band is one that has only one boundary.

Try this: take a pencil and draw a line on both "sides" of the loop. How many times did you have to lift up the pencil? Mobius bands have been used in conveyor belts, typewriter ribbons, and continuous loop recording tapes. You can even make scarves that are Mobius strips!