Raven Hill DISCOVERY CENTER
WHERE SCIENCE, HISTORY AND ART CONNECT

04737 Fuller Road, East Jordan, MI 49727
(231) 536-3369 |www.miravenhill.org
info@miravenhill.org

Raven Hill Discovery Center is a 501(c)(3) tax-exempt corporation.

Mission: Raven Hill provides a place that enhances hands-on and lifelong learning for all ages by connecting science, history & the arts.

Möbius strips

The Möbius strip, also called the **twisted cylinder**, is a one-sided surface with no boundaries. It looks like an infinite loop. Like a normal loop, an ant crawling along it would never reach an end, but in a normal loop, an ant could only crawl along either the top or the bottom. A Möbius strip has only one side, so an ant crawling along it would wind along both the *bottom* and the *top* in a single stretch. A Möbius strip can be constructed by taking a strip of paper, giving it a half twist, then joining the ends together. The topology of Möbius strips is a Euclidean representation of the infinite. Mathematicians have expanded on Möbius strips and generalized it in the form of Klein bottles. Make your own Möbius strip. Cut 2 strips of copy paper, each an inch or two wide. Bring the ends of one strip together and tape to make a simple loop. Bring the ends of the second strip together as before, but before attaching the ends together, add a single half-twist to one side of the strip and then tape. With a marker, draw a line down the center of the first strip without lifting the marker off the paper until the end meets the beginning. Then draw a line down the center of the Möbius strip from beginning to end without lifting the marker and see what happens! The Möbius strip is one-sided. By following this line with your finger or marker without lifting it from the surface, it travels the length of the strip on one side of the paper and then the other side of the piece of paper from the starting position. Continuing to trace the center line, your finger will return to the starting position after traveling both sides of the strip. This was adapted from an article on the internet by Christopher Williams, Satyabrata Dash, Mei Li, and 4 others, who contributed. Here are a couple of other things to explore with Möbius strips! What happens when a Möbius strip is cut down the center line? Now, instead of drawing a line down the center of the Möbius strip, draw a line with distance 1/3rd from the edge. What happens when a Möbius strip is cut down this line? Is it the same as the above example? Enjoy your Möbius strips!


1 Supplies


2 Cut strips


3 Tape one strip


4 Twist & tape strip


5 Draw line down center of both


6 Cut on line of both strips


7 Different results