Mobius Card -- An Impossible Shape!

by Chris Henderson in the February 2002 *Games* Magazine

Take a look at the object above.
It's made from a single 3x5 index card, no part of which has been taped or glued. As you examine the object more closely, do you find it puzzling? Do you wonder how it can exist at all?

Topological puzzles have always fascinated the human mind. We understand shapes and structures on an instinctive level. Thus, when something seems to violate our understanding of three-dimensional shapes, we find it confounding and paradoxical.

An example is the relatively familiar Mobius strip. It's a favorite of math teachers everywhere: You take a long strip of paper, twist one of the ends half a turn, and tape the two ends together. The result is a circular hoop with the intriguing property of having only one surface and only one edge. (Incidentally, the three-arrow symbol commonly used to denote "recyclable" is in the form of a Mobius strip.)

The shape shown above will baffle most people when they see it for the first time. Try showing it to your family or friends and see if they can figure out how you made it. It's best not to let them touch it, or they may discover its secret.

Note: For a more startling effect, you can color the areas on the card that now consist of the "top." The color difference between this new top and bottom will help strengthen the illusion by hiding the fact that part of the card has been inverted.

How To Make the Mobicard

1. Start with a blank 3x5 index card. Be sure to use one that is not lined on either side.

2. Find the exact center of the card by placing a ruler or other straightedge along each long diago- nal. Don't draw on the card; instead, make a small indentation where the two diagonals cross.

3. Place the card so that its longer side is vertical: Starting on the left edge of the card, go about a third of the way down the card from the top (you can estimate this distance) and cut a straight line from the edge to a point halfway across the card- that is, a point directly above the center indentation you made.

4. Again starting on the left edge, go a third of the way up the card from the bottom and cut a straight line from the left edge to a point halfway across the card.

5. Now from the right side, cut a straight line from the midpoint of the right edge to the center of the card.

6. Holding the card with both hands and keeping it parallel to the floor, twist the lower half of the card 180° clockwise so that both the top and bottom are parallel to the floor. Crease all the folds and pull the tab up so it stands away from the remainder of the card.