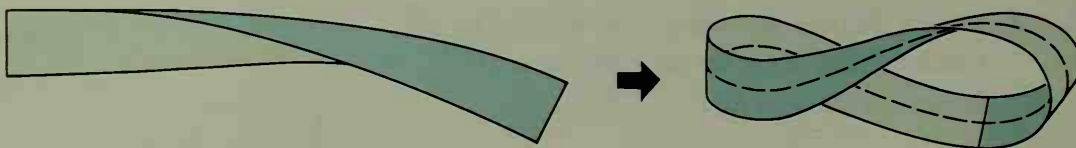


Extra

Möbius Bands

Take a long narrow strip of paper. Give the strip a half-twist. Tape the ends together. The result is a *Möbius band*.



Exercises

1. Make a Möbius band. Color one side of the Möbius band. How much of the band is left uncolored? The original strip of paper had two sides. How many sides does a Möbius band have?
2. Cut the Möbius band lengthwise down the middle. (Start at a point midway between the edges and cut around the band.) What is the result? Cut the band a second time down the middle. Write a sentence or two describing what happens.
3. Give a full twist to a long, narrow strip of paper. Tape the ends together. How many sides does this band have? Cut this band lengthwise down the middle. Write a brief description of what is formed.
4. Make a Möbius band. Let the band be 3 cm wide. Make a lengthwise cut, staying 1 cm from the right-hand edge. Describe the result.
5. Take two long narrow strips of paper. Fasten them together so they are perpendicular and form a plus sign. Twist one strip so it is a Möbius band and fasten its ends together. Don't twist the other strip at all, just fasten its ends. Cut the Möbius band down the middle lengthwise. Then cut the other band down the middle. Describe the final result.

Chapter Summary

1. If p , then q is a conditional statement. p is the hypothesis and q is the conclusion. If q , then p is the converse. The statement p if and only if q is a biconditional that means both the conditional and its converse are true.
2. Properties of algebra (see page 37) can be used to reach conclusions in geometry. Properties of congruence are related to some of the properties of equality.
3. Deductive reasoning is a process of proving conclusions. Given information, definitions, postulates, and previously proved theorems are the four kinds of reasons that can be used to justify statements in a proof.