

Sagices

Tips for Telling

To make the prop for this story you will need scissors, newspaper or large piece of construction paper, and tape.

Long ago and far away there was a tiny village at the foot of a tall mountain. The villagers went about their daily business but grew more and more fearful as the year came to an end. Every four years a horrible monster ventured down from the mountain and devoured three of the village inhabitants. As the time grew nearer the mayor met with his council.

"We must do something to stop this terror!" he exclaimed.

"Could we blow it apart?" asked one.

"How? Others have tried and it's indestructible!" replied another.

"We must face this monster and settle things once and for all! Who will go to the mountain with me?" roared the mayor.

"Oh, dear. I'm afraid I shall be busy that day," said one councillor after another. Finally, there was only the mayor, the reeve, and the town clerk who agreed to go. Early next morning the three set off for the mountain.

As they approached the foot of the mountain they saw the horrible creature descending, heading towards the village for its victims. Sagices, for this is what they named it, caused their blood to run cold as they looked up the horrible creature towering above them. It had stringy black hair hanging over its white face, black lips, and vacant stare from two sunken red eyes. The body was cloaked in grey, and there was a strange band around its neck. Its fingers waved like spider's legs and the creature seemed to float over the ground.

As it approached, the mayor called out "Halt! Sagices!" The creature hovered about the ground, its eyes glowing bright red. It stared at them as the reeve bravely began.

"We no longer want to be terrorized by you. You must put an end to devouring our villagers."

Sagices replied, "I have no reason to stop. In fact, my hunger increases and there are three of you right here! Ha-ha-ha."

Trembling, the mayor said, "there must be some solution to end this?"

"Indeed!" replied Sagices. "I would like to devour the whole village and you have just given me the way. Around my neck is a special band. You each have one try to remove it without breaking it apart. If you cannot, I will eat you."

With that, the clerk turned on his heels and ran back to the village. The reeve bravely took hold on the band and pulled with all his might, but it would not go over Sagices' head. Sagices' eyes glowed and it devoured the reeve right before the mayor's eyes.

Hardly able to stand from fright, the mayor spoke to the monster, "Sagices! I hear you are so powerful you can turn yourself inside out."

"Yes, I can!" replied Sagices, and it did so, but the band did not fall off. Just as the monster was ready to devour the mayor, the clerk came running over the hill.

"Wait!" he cried. "Let me try!" Out of breath, he reached them, and produced a large pair of scissors.

When the mayor reminded him it can't be cut apart the clerk replied, "I only intent to cut it like this." (*Cut möbius strip in half lengthwise.*)

With that the clerk removed the band and Sagices began to fade away — gradually at first, then quickly until there was nothing left by a vapour. Out of the mist stepped the reeve.

The three rejoiced and returned to the village which was free at last from the grip of Sagices.

The Möbius Strip

The Möbius Strip is made by cutting a long strip of paper, such as you would get by cutting a three inch wide strip from a newspaper or large piece of construction paper. The ends of the strip are joined after twisting the paper one half revolution. Here's the step-by-step instructions:

1. Start with a long rectangle (ABCD) made of paper.
2. Give the rectangle a half twist.
3. Join the ends so that A is matched with D and B is matched with C.

This curious surface is called a **Möbius Strip** or Möbius Band, named after August Ferdinand Möbius, a nineteenth century German mathematician and astronomer, who was a pioneer in the field of topology. Möbius, along with his better known contemporaries, Riemann, Lobachevsky and Bolyai, created a non-Euclidean revolution in geometry.

Möbius strips have found a number of surprising applications that exploit a remarkable property they possess: one-sidedness. Joining A to C and B to D (no half twist) would produce a simple belt-shaped loop with two sides and two edges — impossible to travel from one side to the other without crossing an edge. But, as a result of the half twist, **the Möbius Strip has only one side and one edge!**

Possible Activities

A Möbius Strip is made by cutting a long strip of paper, such as you would get by cutting a three inch wide strip from a newspaper or large piece of construction paper, and the joining the ends of the strip after twisting the paper one half revolution. (Be careful with newspapers since the ink can stain clothes.) For magic tricks, the longer the band the better. If you use a long narrow band it will be harder to tell that the band has been twisted. Something at least 6 feet by 6 inches would work well. When you try to cut such a band though the center into two pieces (lengthwise) you get a longer band which is twisted in two spots. If you cut this you get two large bands, each of which is twisted - the more you cut the worse it gets.

You can use these bands to have some fun. Gardner's book [Mathematics, Magic and Mystery](#) attributes this variation of the trick to a magician named Phil Foxwell. You can find many variations of this trick in the three references listed on the main page and you may find one you like more.

Before you start your trick carefully prepare three bands. It will help you keep things straight and provide a more colourful trick if they are made from different coloured paper. With patience you can create three strips about 10 feet long and 6 inches across. One way to make such long bands is by joining several cut pieces of construction paper with glue or scotch tape. Once these pieces are attached, the long strip is joined end to end. Make sure there are no twists in this band. The second long strip is joined end to end after making sure there is only one half twist in it. The third long strip is joined end to end after making sure there are only two half twists in it.

To start the trick bring out the three huge paper bands and hand one band and one pair of scissors to each of two volunteers (you keep the one without the twists). You announce that this will be a race requiring great skill and superb concentration, but that the audience can cheer for their favourite. The winner and master cutter will

be the first person who succeeds in cutting his band into two separate rings. To show them what you mean, you cut the remaining band (the one without the twists) in half, showing the two rings. Since this is a race tell them to shout "TaDa!" and hold up their hands as soon as they have finished cutting their band so you can tell who wins.

The volunteers start when you say "Go!". As soon as the first one finishes you start to declare a victor - but then you point out a problem with their "two" bands. You urge the other one to continue, stating that the first "TaDa!" just didn't cut it. When the second contestant finishes you again start to declare a winner but you soon will see that he didn't cut it either.

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From Carol: "Sagices" is named from the fist letter of each students name who helped me to write this story. Special credits go to Sam Macdonald, Alana Johnston, Gregg Sangster, Cherish Gamble and Chris Siemens.