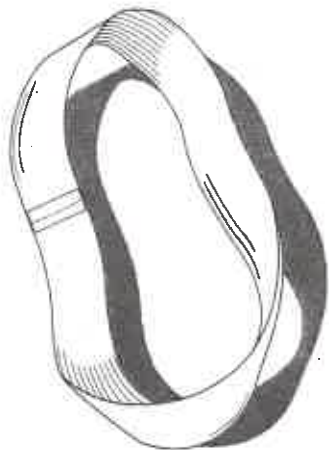**LAB**

1 **STUDENT WORKSHEET**

DISCOVERY LAB

One Side or Two? - Scientific Method

How many sides does a piece of paper have? The answer seems obvious enough: two, a front side and a back side. But be careful! As you will soon find out in this activity, the most obvious answer is not always the correct one.

MATERIALS

- adding-machine tape
- scissors
- meterstick
- transparent tape
- pen or pencil

SCIENTIFIC METHOD

Ask a Question (Step #1)

How many sides does a piece of paper have?

The Line Stops Here

1. Cut a 75 cm strip of adding-machine tape. Bring the two ends of the strip together, but give one end half a twist.
2. Tape the two ends together to form a Möbius strip, as shown.

Make a Prediction (Step #2)

3. How many sides do you think the strip has?

Conduct an Experiment (Step #3)

4. Put a dot near the middle of the strip. Starting from the dot, draw a line down the length of the strip until you reach a boundary.

Analyze the Results (Step #4)

5. Where did the line end? How much of the Möbius strip has a line drawn on it?

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_____

Draw Conclusions (Step #5)

6. How many sides does a Möbius strip have? How do you know?

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_____

_____

7. Show/Talk to your neighbor. (Step #6) about your results.

One Side or Two? continued

Conduct more experiments. What would happen if you cut the strip along the line that you drew in step 4? Make a prediction, and record it here. After completing the experiment in row 7, continue and fill out the rest of the chart.

Experiments with Möbius Strip

Steps	Make a prediction: What would happen if you cut the strip along the line?	Conduct an experiment: (✓ when completed)	Analyze the results: Describe the figure that you see.	Draw conclusions: How many sides does this figure have? Explain your answer.
7. Look at the strip resulting from step 4.				
8. Use the resulting figure from step 7. Draw a line down the length of the strip.				
9. Make a new Möbius strip. Draw a line down the length of the strip, keeping the line 2 cm from the edge.				