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

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?

Draw Conclusions (Step #5)
6. How many sides does a Möbius strip have? How do you know?

7. Show/Talk to your neighbor (Step #6) about your results.
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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<tbody>
<tr>
<td>1.</td>
<td>Make a new strip.</td>
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<tr>
<td>2.</td>
<td>Draw a line down the length of the strip.</td>
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<td>3.</td>
<td>Make a prediction of what would happen if you cut the strip along the line that you drew in step 2.</td>
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<tr>
<td>4.</td>
<td>Conduct the experiment.</td>
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<td>5.</td>
<td>Explain your answer.</td>
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**Experiments with Mobius Strip**

Conduct more experiments. What would happen if you cut the strip along the line that you drew in step 2? Conduct more experiments. What would happen if you cut the strip along the line that you drew in step 2?