

**Practice problems of the Smiley-Face Type:** For each of these problems, the smiley is moving across the "tape-me-here" line in the direction shown by the dashed arrow.

- For each problem, show what the smiley will look like when s/he reappears on the other side of the "tape-me-here" line.
- Use the two smileys to determine whether the surface is orientable or non-orientable

<p>1.</p>	<p>2.</p>
<p>3.</p>	<p>4.</p>

**Moebius strip problems:**

5. Explain what it means to say that a Moebius strip has only one side.
6. Explains what it means to say that a Moebius strip has only one edge.

**Turn me into a vertex-edge graph problem:** For each of these line designs, turn it into a vertex-edge graph using as few vertices and as few edges as you can. Draw on the line design to show where each of the vertices should be. Next to each vertex, write the number telling how many edge-ends meet at that vertex.

<p>7.</p>	<p>8.</p>	<p>9.</p>	<p>10.</p>
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11. Draw a graph that has only 1 vertex, and has more than 1 edge.