

Any object that has the property that around every point there is a small neighborhood equivalent to a small neighborhood on the plan is called a **surface**.

- Can you describe a surface that has:
 - Two sides and one edge?
 - One side and one edge?
 - Two sides and no edges?
 - One side and no edges?
- Suppose you are given a band of paper with a lot of twists in it. How can you tell without counting whether you have an even number of half twists or an odd number?
- On a transparent Möbius band, draw a map that has five countries, each of which touches the other four; that is, each and every country shares a border with the four other countries. Similarly, draw a map on the Möbius band that has six countries, each of which shares a border with the five other countries.
- Can you draw a curve that does not intersect itself and that goes around a Möbius band three times without crossing over the edge?
- **Homework:** Build a Klein bottle and then cut the bottle in two along the correct path to show that is actually the union of two Möbius bands glued along their boundaries.