ICTS-RRI Maths Circle, Saturday 27th September 2025
Geometry and Topology-V

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Figure 1: An ad for Mathematics education shows three gears interlocked as above. The caption is Mathematics education needs Parents, Teachers and Students, all three working together. Can you spot the flaw in the picture?
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We will continue to explore topology through graph theory. We will wind up our discussion of map colouring by proving the five colour theorem. We give you a part of the proof and ask you to supply the rest. This will be followed by a small description of the four colour theorem, which was proved as late as the 1970s using computers in the final stages.

We learned earlier about two-dimensional spaces: the sphere, the torus and the higher genus spaces. Today we will expand our repertoire to look at non-orientable spaces, the Möbius strip, the Klein bottle, and real projective space. This will involve paper, scissors, tape and lots of surprises (if you haven't already seen these objects).