10.1 Practical activities

1 Magnetic striping

Purpose

To simulate the magnetic striping patterns found in the rocks from seafloor spreading.

Materials

- 2 plain A4 sheets of paper
- compass
- bar magnet
- red and yellow pencils
- 2 clothes pegs
- sticky tape

Procedure

1. Tape the two A4 paper sheets together at one end so you have one long piece of paper. Rule a line across the open end of each sheet 10 cm from the end. Close the paper so the two A4 sheets are face to face with the ruled lines on the inside face of each paper.
2. Push two desks together, leaving a gap of a few millimetres.
3. Push the taped end of the paper down into the gap between the desks until you reach the ruled line. Leave 10 cm of the paper projecting above the desktop.
4. Place a compass on the desktop, next to the top edge of the paper. Place a magnet on the desk about 5 cm away from the compass. Have the north end of the magnet pointing away from the compass.
5. Gently fold the ends of the paper down, one end on each desk, and put a peg on each to weigh each end down (see Figure 10.1.13).
6. You are now ready to start your simulation. Under the desk, gently push up on the taped end of the papers until about 2 cm of paper has come out above the desk. Hold the paper still and use the red pencil to colour the 2 cm strip between the opening in the desk and the line on the paper. You should have a 2 cm red strip on each side of the opening in the desk. Your setup should look like Figure 10.1.13.
7. Spin the magnet around so that the north end is pointing at the compass.

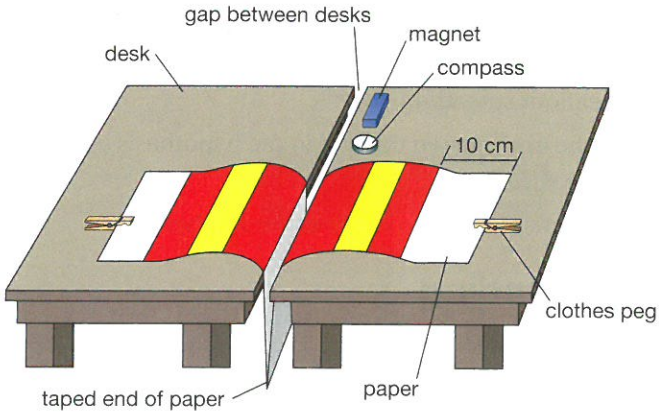

Figure 10.1.13

8. Repeat step 6, but use the yellow pencil to colour in the 2 cm strip. You now should have a red strip and a yellow strip on each side of the opening in the desk.
9. Repeat steps 6–8 until you have three red lines and three yellow lines on each side of the opening in the desk. For step 7, spin the compass around so the north pole is to the top of the desk.
10. On each of your sheets, number the layers 1–6 in the order that they formed. Write on the oldest layer of rock the word 'oldest', and on the youngest layer, the word 'youngest'.

Discussion

1. In this simulation, **identify** what the:
   - a gap between the desks represents
   - b two sheets of paper represent
   - c magnet represents
   - d purpose of the compass is
   - e red colour on the paper represents
   - f yellow colour on the paper represents.
2. **State** the number and position of the layer that was the youngest on each sheet, and the layer that was the oldest on each sheet.
3. **Explain** how this simulation is useful in understanding magnetic striping along the ocean ridges.