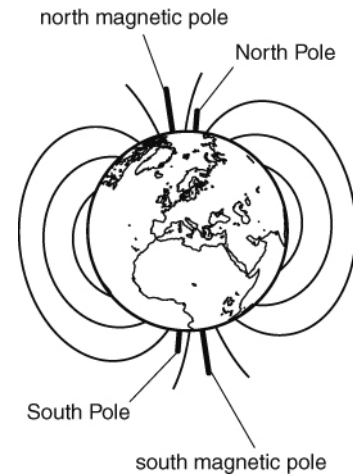
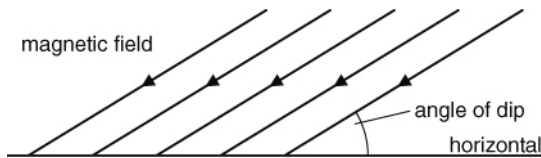


Dip

Did you know that if you bought a compass in Australia it would not be the same as one you could buy in Britain?

The Earth's magnetic field is not parallel to the surface of the Earth. The angle between the horizontal and the direction of the magnetic field is called the dip. A magnet suspended in the Earth's magnetic field would line up with the field.

Compass needles are just small magnets. Compasses that you can buy in the UK are weighted at one end of the needle so that the needle does not tilt.



Deviation

Any magnetic material will have an effect on the Earth's magnetic field. A compass used near a piece of magnetic material might not point towards the north magnetic pole. The difference between magnetic north and the direction the compass is pointing is called deviation.

Deviation is not usually a problem for people using compasses for walking or orienteering, unless they are standing close to something made from iron or steel. Deviation can be a problem in ships. Sometimes deviation is corrected by placing small magnets or pieces of steel around the compass to cancel out the magnetic effects of the rest of the ship. Sometimes the navigator has a table of corrections to be made to the compass readings to allow for the effects of magnetic materials near the compass.

- 1 What is dip?
- 2 Will the dip be the same everywhere in the world? Explain your answer.
- 3 Which end of a British compass needle will be weighted? Explain your answer.
- 4 How will an Australian compass be different to a British one? Use diagrams to help you to explain your answer.
- 5 What is deviation?
- 6 a Why don't walkers usually have a problem with deviation?
b When might deviation be a problem for a walker trying to use a compass?
- 7 Why can deviation be a problem in ships?
- 8 Describe *two* ways of correcting for deviation in a ship.

I can...

- use ideas about the Earth's magnetic field to explain dip and deviation.