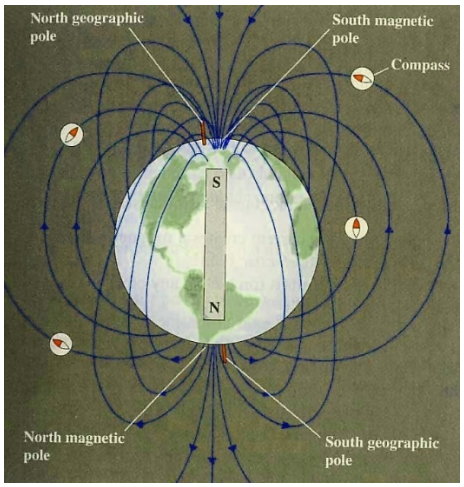
Interacting Magnets
(The Compass)

Equipment



Purpose: Demonstrates the definitions of magnetic poles, and the nature of the compass and the Earth's field.

The north pole of a magnet is defined to be the one that wants to point to the Earth's *geographic* North Pole. With the magnets in their swivel stands you can show (one at a time of course) that they have been calibrated so.

Next, the compass can be demonstrated as another magnet with its north pole (points north) painted red.

Then bring pairs of magnets together to demonstrate that like poles repel each other, and unlike poles attract. What does this say about the Earth's Field? The Earth's North Pole (*geographic*) is in fact its South *magnetic* pole.

When the idea of magnetic field lines is introduced, their orientation is defined as the direction in which a tiny test compass would point. Hence, field lines are oriented as pointing towards the south pole

of the source. A small electromagnet is included in the set so that one can use the compass to define the coil's N and S poles.

Note:

Extra Equipment: Battery or Power Supply

Location: Shelf F3 (Magnet Set)