

Magnetic Fields

Basic principles of magnetism are that like poles repel; unlike poles attract. Also a magnet produces a magnetic field which surrounds and permeates the area around the magnet. This field can penetrate through non-magnetic material such as paper, wood or plastic. It also will attract metals like iron or steel, but not metals like aluminum or brass.

The factors mentioned above can let us view magnetic fields by using iron filings, which will align with the magnetic fields which surround a magnetic. It will also show that the field does not permeate the area like a solid sheet but follows specific paths. In general the path is thought to originate from the north pole and travel to the south pole.

A compass is a magnet with a north and south pole. The north pole of the magnet is indicated by the arrow head and points to our geographic North Pole, however since unlike poles attract, the Earth's geographic north pole is actually a magnetic south pole.

In this lab you will determine the magnetic poles of the hidden magnets, draw the magnetic field lines and indicate the direction of the field lines.

You will be asked individually to go up to the center lab table to complete this lab report. There will be four lab stations A – D.

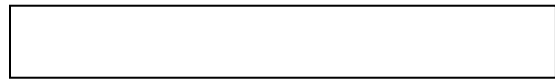
Sketch the magnetic field lines and use a compass to determine the magnetic poles of the magnets. Remember like poles repel and unlike poles attract.

A. Single bar magnet. Indicate on the diagram the poles for the magnet



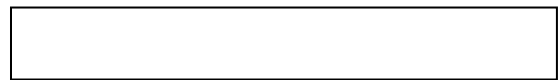
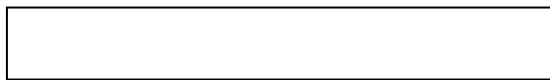
B. Two bar magnets.

The two nearest poles of the magnets are (repelling, attracting) one another.
Indicate on the diagram the poles for each magnet



C. Two bar magnets.

The two nearest poles of the magnets are (repelling, attracting) one another.
Indicate on the diagram the poles for each magnet



D. Three bar magnets. Indicate on the diagram which magnets are repelling one another and which are attracting one another. Indicate on the diagram the poles for each magnet

