

Experiment 12: Magnetism

Permanent Magnets

1. You need the following materials: several sheets of paper,
metal bar magnet with poles marked
unmarked ceramic magnet
small magnetic compass
2. Place the bar magnet flat in the center of the paper and draw around it. Mark the poles.
3. Place the compass at various positions around the magnet. For each position, draw an arrow showing the direction that the compass pointed. (at least 20 points)
4. Place the magnet on its side in the center of another piece of paper. Draw around it and mark the poles.
5. Repeat #3.
6. Place the ceramic magnet on a piece of paper and repeat #3 and #4.
7. Where are the north and south poles of this magnet. Explain how you know.

Electromagnets

1. You need the following materials: battery
lead wire
small magnetic compass
masking tape
2. Wrap the lead wire several times around the compass and tape in place. (You need to be able to see the compass needle.) Connect the lead to the batteries and observe the compass needle. Repeat this 2 more times with the wire wound around the compass in different directions. Start each time with the compass in the same direction.

Observation #1 _____

Observation #2 _____

Observation #3 _____

Note: Your description of the wire winding must clearly show the direction it is wound, the battery polarity of the ends, and the north pole of the magnet.