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Name _____
Lab: The Basics of Magnetism

A. Pole Types

Hold the compass and allows its needle to come to rest.

To verify that the compass does point north, set the compass on the table.

Pick up one of the bar magnets and bring the (marked) north pole near the compass.

The north pole of the magnet should cause the compass needle to deflect so that the south pole of the compass points towards the north pole of the bar magnet.

Do both bar magnets have the correct polar orientation?

B. Magnetic Field Lines

Spread two sheets of wax paper on the work table.

Place a bar magnet on the table and cover it with a plain piece of white paper.

Gently and slowly sprinkle iron filings over the paper.

Gently tap the paper with your finger several times until the filings form a pattern.

Sketch the pattern of the iron filings around the magnet.



At what points in the magnetic field about a magnet are the magnetic field lines most concentrated?

Gently pick up the paper and return the iron filings to the container.

C. Magnetic Field Lines Between Poles

Place both magnets on the table with the north pole of one magnet about 4 cm from the north pole of the other magnet.

Lay the piece of paper on top of both magnets.

Gently sprinkle some iron filings over the paper.
Gently tap the paper with your finger several times until the filings form a pattern.

Sketch the pattern of the iron filings around the magnet.



Describe the magnetic field lines between two like poles.

Gently pick up the paper and return the iron filings to the container.

Place both magnets on the table with the north pole of one magnet about 4 cm from the south pole of the other magnet.

Lay the piece of paper on top of both magnets.

Gently sprinkle some iron filings over the paper.

Gently tap the paper with your finger several times until the filings form a pattern.

Sketch the pattern of the iron filings around the magnet.



Describe the magnetic field lines between two unlike poles.

Gently pick up the paper and return the iron filings to the container.

Carefully fold up the waxed paper so that any stray pieces of iron filings are inside.

Discard.

D. Induced Magnetism

Test an iron nail for magnetism by touching it to paper clips.

Describe the result.

Place the nail at one end of a bar magnet.

Describe the result.

Now bring the nail closer to the paper clips while the nail is still attached to the magnet.

Describe the result.

Bring the free end of the nail near your compass.

Describe the result.

Check the polarity of the free end of the nail compared to the end of the magnet to which it is attached.

When an iron nail is attached to a magnet, how does the pole type at its free end compare with the pole type at the end of the magnet to which it is attached?