Magnetic Fields and Forces

As you work through the steps in the lab procedure, record your experimental values and the results on this worksheet. Use the exact values you record for your data to make later calculations. Enter your right-hand rule predictions before your measured directions.

Electromagnet

Right-hand rule predictions

Record the expected directions of the magnetic field at each end of your electromagnet.

At the end opposite the plastic holder the magnetic field is _____.

At the end with the plastic holder the magnetic field is _____.

Measured directions

Measure and record the directions of the magnetic field at the ends of the electromagnet.

At the end opposite the plastic holder the magnetic field is _____.

At the end with the plastic holder the magnetic field is _____.

Electromagnet - Leads Reversed

Right-hand rule predictions

Record the expected directions of the magnetic field at each end of your electromagnet.

At the end opposite the plastic holder the magnetic field is _____.

At the end with the plastic holder the magnetic field is _____.

Measured directions

Measure and record the directions of the magnetic field at the ends of the electromagnet.

At the end opposite the plastic holder the magnetic field is _____.

At the end with the plastic holder the magnetic field is _____.

Electromagnet - Iron Filings Observations

Is the rod permanently magnetized?

How do the sizes of the two piles compare? Does the strength of the electromagnet depend on the magnitude of the current?