

## THE MAGNETIC FIELD IN A CURRENT CARRYING COIL

**OBJECTIVE :** To determine the relationship between magnetic field and Current in a coil .

**MATERIALS:** Vernier labpro interface , magnetic field sensor, square shaped Coil, switch ,bar magnet, 1.5v and 3v batteries .

**PROCEDURE :**

1. Connect the magnetic field sensor to channel 1 of the labpro .
2. Open the datamate program and explore the field around a bar Magnet by rotating the sensor around the magnet.

**QUESTIONS**

1. When is the magnetic field maximum around the bar magnet ?
2. Predict what the magnetic field will look like around a square shaped coil.

Connect the coil , switch , and the 1.5v battery. With the probe find the Maximum magnetic field around the coil.

Repeat the above steps with a 3v battery .

Voltage across the coil	Magnetic field
1.5	
3.0	

**Questions :**

What is the relationship between the voltage across a coil and the magnetic field around it ?

What will the magnetic field looks like around and inside a slinky ?