

## Physics IA

Determining the strength of an electromagnet.

-how does each extra coil of wire around a metal bar increases the potential/power of the electromagnet

Part of the investigation:

- is it the actual coil (shape) or just the extra length of wire added
- does the proximity (tightness) of the coils matter; what if I had the same number of coils but spread, really separated apart
- And try it out, what changes?

How to measure the magnetic field?

-phone? (where is the phone's sensor?)

Progress-

Experiment:

- Coiled insulated copper wire with loops separated from each other.
- Scrape off the ends of the wire
- Connecting resistor to one end and that end to one end of the battery, and the other end to the other battery end.

Observations:

- The system conducts 6 mA (observed with ...current meter?), remember it has a resistor.
- When using the magnetometer (phone) to measure the magnetic field goes up to 80 when the system is connected and around 70 when its not, however, we don't know if the measurements of the "magnet" are being mixed with those of the battery, so the objective is to isolate the magnet by getting it as far as possible from the battery. Objective for next class.

Re-do (vandalized)

- copper wire spring
  - 50 coils
  - not tight (separated from each other)