

How does the Geometry of an Inductor Affect the Magnetic Field?

Questions to consider...

What is an inductor?

What does it look like?

How does it work?

How is it used?

Does its shape matter?

In general the way an inductor works is pretty simple. However if you were to look at the way they are used to analyze different materials here at the lab it can get pretty hairy. Let's look at the specific shapes that are used in the lab and why they are used.

Making your inductor

Take some wire and cut about 12 inches long.

Take the wire wrap it around any object of different shapes and sizes

Connect your inductor to the circuit and hook up the circuit to the oscilloscope to get your readings.

Make various inductors with different amounts of turns and different types of wire. Probe each inductor with the probe connected to the oscilloscope and note the readings you get.

Pull, compress and unwind your inductor and see how this affects your readings

Try different shapes and sizes (triangles, squares, spirals etc...)

Changing the direction of the current

Change the way the wires are hooked up to your inductor (this will change the direction of the current)

What affect does the currents direction have on the readings?

What happens if the probe is moved around the outside of the inductor?

Play around with the coil and inductor and look at the different readings