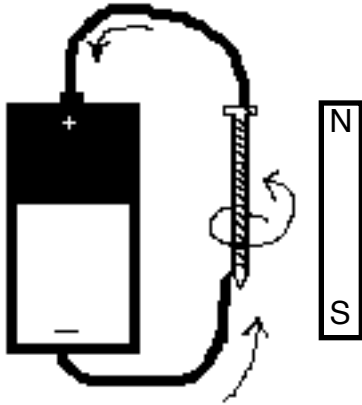


# Electromagnetic Experiments NAME \_\_\_\_\_

Background: When electrons move through a wire, they produce an electromagnetic field (a magnet). When you coil up the wire around an iron rod, the magnetic field is focused through the iron rod, producing a BAR MAGNET.

## What determines the strength of an Electromagnet?



Is it the number of coils?

Does it matter if the coils overlap each other?

Does the length of the iron core matter?

Does the voltage matter? How many batteries are used.

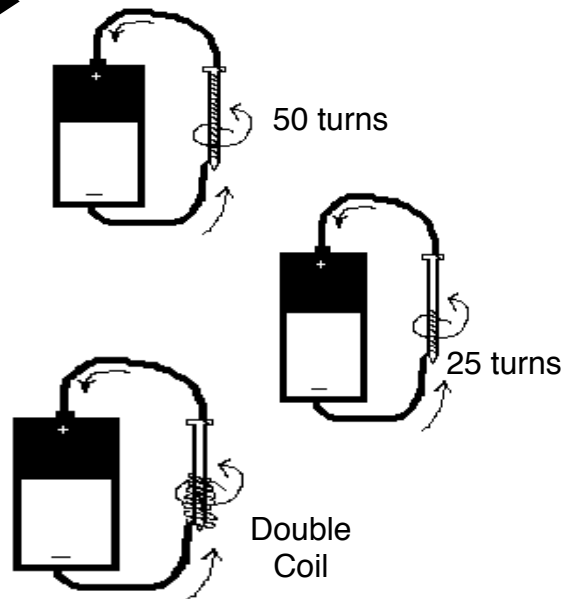
Does the thickness of the wire matter?

Build an electromagnet with 50 turns of wire around a nail. Hook up the battery and see how many iron washers it will hold up. Do this 3 times.

Now uncoil 25 of the turns and see how many washers it will hold up. Do this 3 times. There will be 25 wraps left around the iron core (nail). Now, coil back 25 turns over the top of # of the coiled wire (double coil the wire) and see how many washers it will hold up. Repeat this step 3 times

		# of washers	50 Turns
50 turns	Trial 1		Average
50 turns	Trial 2		# of
50 turns	Trial 3		washers
	Total>>>		
			25 Turns
25 Turns	Trial 1		Average
25 Turns	Trial 2		# of
25 Turns	Trial 3		washers
	Total>>>		
			Double Coil
25 +25 turns	Trial 1		Average
25 +25 turns	Trial 2		# of
25 +25 turns	Trial 3		washers
	Total>>>		

Average = total divided by 3 tries



What produced the strongest magnet and why??? Write on back of paper too.

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