



1. Compare your prediction with the field line diagram and iron filing diagram you created. Was your prediction accurate? If not, what were some differences?

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**Part II: Creating an Electromagnet**

- a. Using the wire and nail, wrap the wire 25 times around the nail without overlapping the wire.
- b. Strip the ends of the wire to expose the copper inside the wire so that it can be connected to the battery holder.
- c. Draw a diagram of your electromagnet.

- d. Begin with one battery connected to the wire, and attempt to pick up the paperclips with the nail.

1. Increase the number of batteries connected to the wire. What do batteries add to a circuit?

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2. How does the strength of the magnet change as more batteries are added to the circuit?

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- e. Now, change the number of times the wire is wrapped around the nail to 50, and, again, attempt to pick up paperclips.

3. How does the strength of the magnet change as the wire is wrapped around the nail more times?

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