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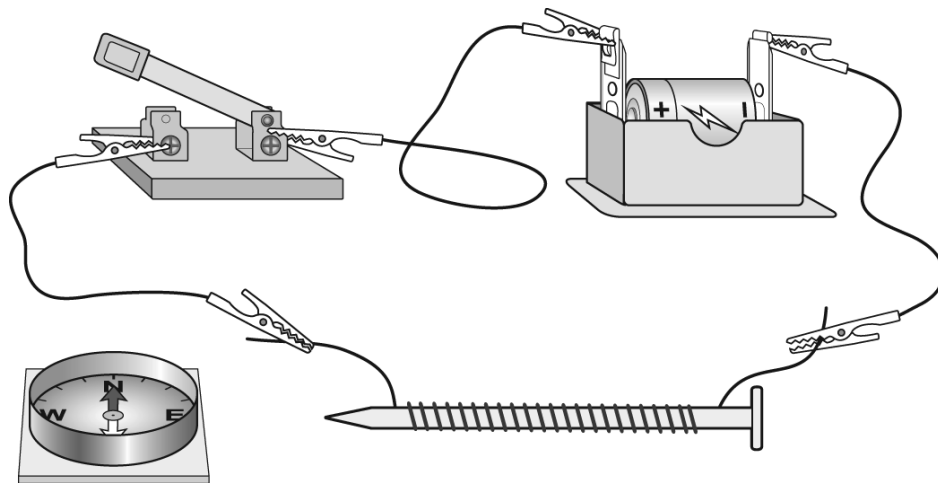
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(Unit 1 Chapter 2, Activities 5–6)

Electromagnets

1. An electromagnet consists of a coil of wire wrapped around a magnetic metal (usually iron) and connected to a source of electricity.
2. An electromagnet interacts with other magnets and magnetic materials just like an ordinary magnet.
3. The strength of the magnetic interaction between an electromagnet and a magnetic material depends upon three variables associated with the electromagnet: number of turns of wire wrapped around the magnetic material, amount of magnetic material, and amount of electric current in the wires.



What is the evidence for this idea?

Defining Characteristics of the Electromagnetic Interaction

4. The electromagnetic interaction occurs when a wire carrying an electric current is near a magnet.
5. Evidence for an electromagnetic interaction is a change in motion of either the magnet or the wire (usually wrapped in a coil) carrying the electric current.
6. The electromagnetic interaction helps explain how motors and meters work.
 - a) In a motor, the interaction between the current in coils of wire and magnets cause the coils of wire to spin very fast. That causes things connected to the coils to move as well.
 - b) In ammeters, the electromagnetic interaction causes a needle connected to a coil of wire to rotate an amount determined by the amount of electric current in the coil. The value of the current can be read from a scale. Other types of meters work in a similar way.
7. Interactions between electromagnets and magnets can be described as either magnetic interactions or electromagnetic interactions.