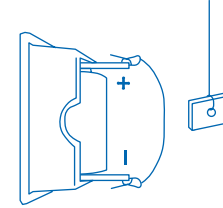
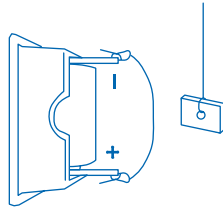
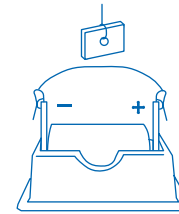
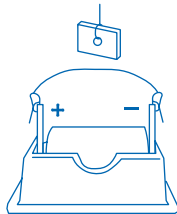


A Compass in a Circuit

1. Tape or tie one end of the thread to a magnet. Tape the other end of the thread to a surface so that the magnet swings free. Build a circuit. Connect the short piece of wire to the electrical clips. Place the circuit so that the wire is vertical and close to the magnet. What happens to the magnet? Turn the circuit 180°. What happens?

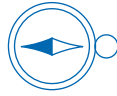
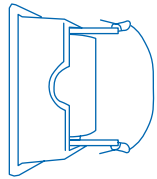


Next, place the circuit so that the wire is horizontal. Then turn the circuit 180°. Record how these positions affect the magnet.

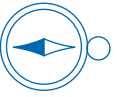
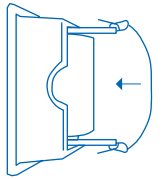


A Compass in a Circuit

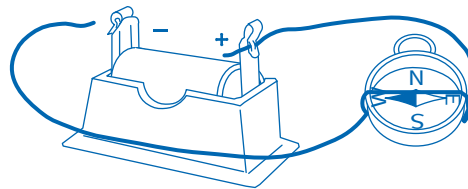
2. Hold the circuit near a compass, as shown below. What happens?



Move the wire back and forth, as shown by the arrows. What happens?



3. Disconnect the short piece of wire from the clips. Wrap the long piece of wire once around the compass so that it lines up with the compass needle. Connect one end of the wire to an electrical clip. Touch the other end of the wire to the other clip. Alternately disconnect and connect the wire. What happens to the compass needle?



4. Now make several wraps (at least four) of wire around the compass. Repeat step 3. Describe your observations.
