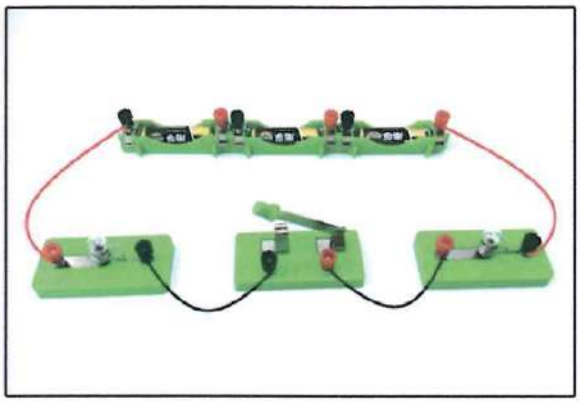
Electricity Sets

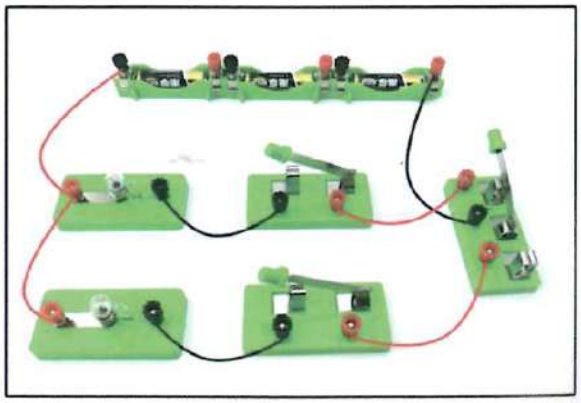
1. **Series & Parallel**

Build each of the figures and write down observations of the brightness of the bulbs:

Series Circuit:

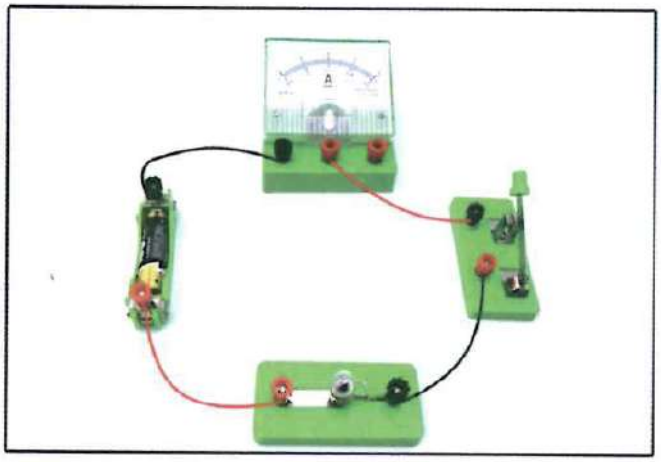


Parallel Circuit:



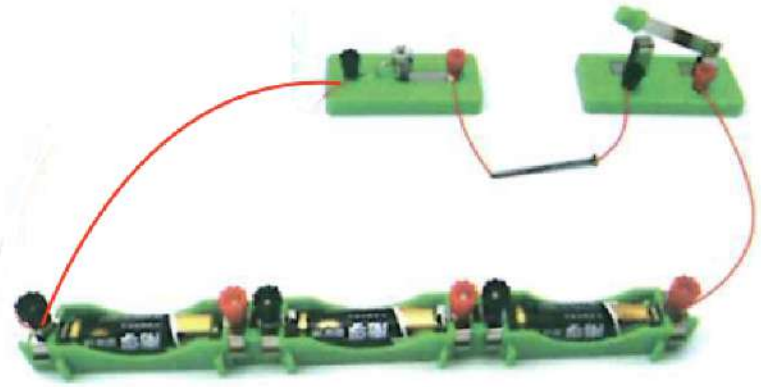
2. **Ammeter**

Build the figure and record the reading of the ammeter. As soon as you flip the switch to closed, watch the meter to see where the needle goes to. Each hash mark is .1. Write down the number.



3. **Insulators and Conductors**

Build the figure and observe if the bulb lights. If it does not light, list it as an insulator. If it does light, list it as a conductor.



Nail = Pencil (wood part) = Paperclip =

Penny = Eraser =

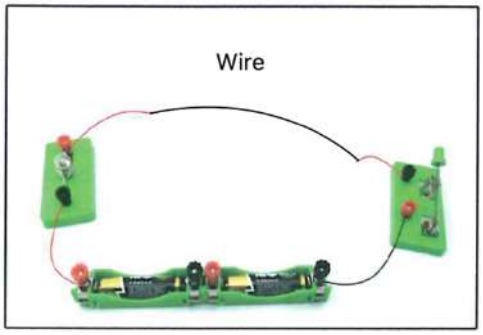
4. **Resistance**

   Build the figure. Put a piece of wire and record the brightness of the bulb for each length of wire:

   Short wire (1 piece of wire):

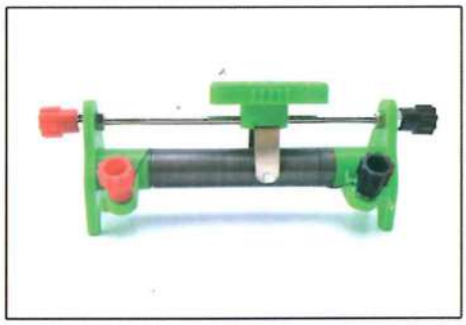
   Medium length (3 pieces of wire all touching):

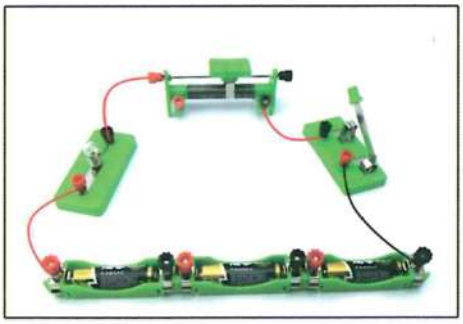
   Long length (5 pieces of wire all touching):



5. Sliding Rheostat

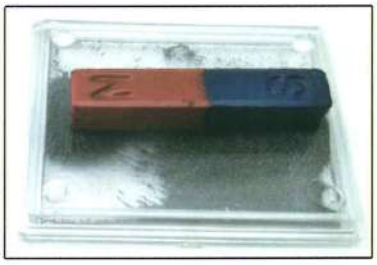
   Build the figure. Move the slider of the rheostat to observe the change in the brightness of the lamp. Record your observations.





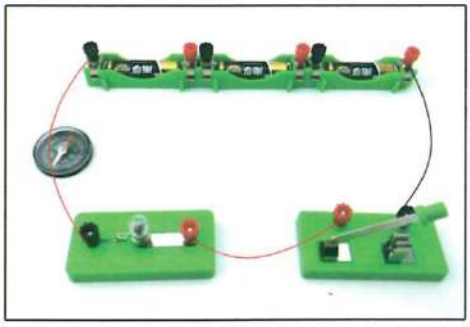
6. Magnetics

   Place the straight magnet on the iron filings and shake the iron filings. Sketch the shape the iron filings create.

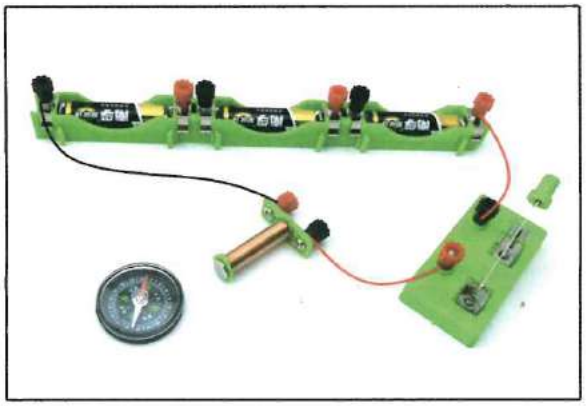


7. Oersted Experiment

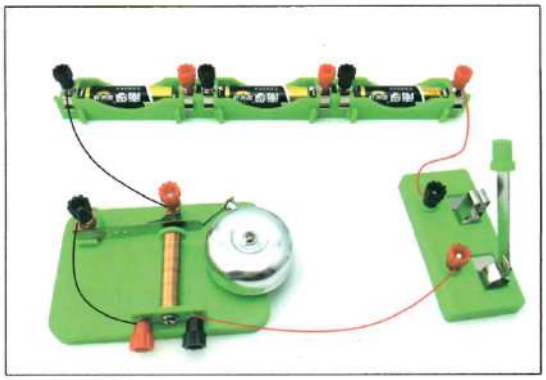
   As shown in the figure, place the wire along the N and S poles of the compass needle. Quickly close and open the switch and observe the needle of the compass. Record your observations.



8. Build the following and record what happens to the compass when the switch is on.



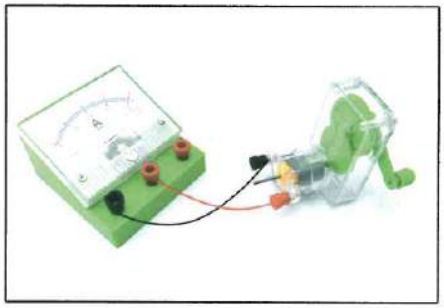
9. Build the following to get the bell to ring. Record the bell is ringing.



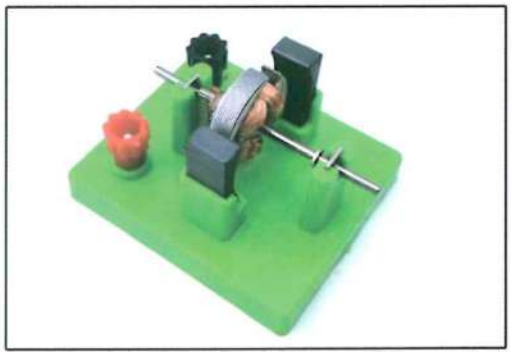
10. Connect the hand crank to a lightbulb. Rotate the crank in one direction and then rotate in the other direction. **Does the bulb light both ways?**

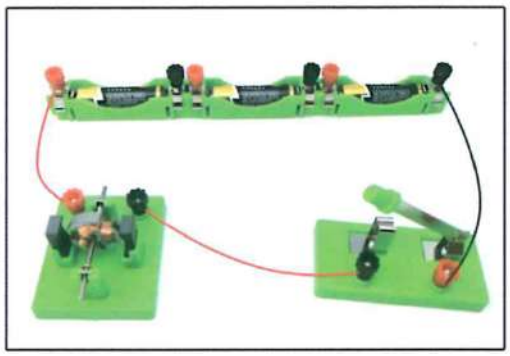
Try cranking slowly, then cranking quickly. **What is the difference?**

11. Connect the hand crank to the ammeter and turn the crank. Record the reading.

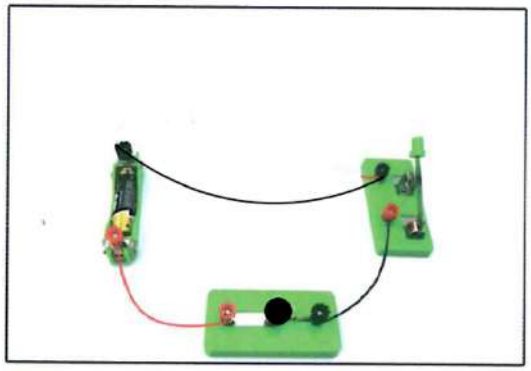


12. Create the circuit. Close the switch and observe the direction of the motor spin. Open the switch, then reverse the magnets on the motor. Close the switch, obverse the direction of the motor spin. What do you observe?



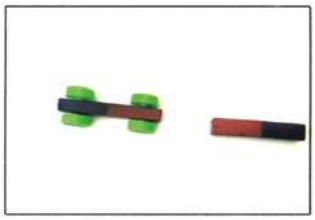


13. Connect the battery to the mini speaker. It should make a loud noise. Put a magnet near the speaker and note the change in the sound. Describe what happens:



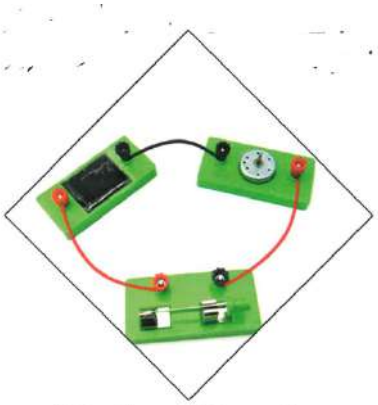
14. Build each of the following and describe what happens:

Magnetic Field interaction



Magnetic car

15. Connect the solar panel to the motor and see if it turns. Then connect the solar panel to the LED light (green bulb). Doe that work? Why does one work and not the other?



Solar Energy Generation