

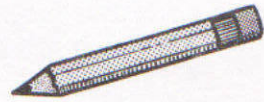
IN SERIES



Electricity ()

1. Diagram each circuit:

- 1 cell, 1 bulb and 1 switch in series.
- 1 cell, 2 bulbs and 1 switch in series.
- 2 cells, 1 bulb and 1 switch in series.
- 2 cells in opposition connected to 1 bulb and 1 switch in series.



2. Build each circuit as you have diagramed it. Under each drawing, note the relative brightness of the bulbs: bright, medium, dim, none.

3. A bulb's brightness indicates how much current is flowing through it. Under each drawing note the relative amount of current that flows through each circuit you made: high amperes, medium amperes, low amperes, no amperes.

4. In series hook-ups, voltage increases with the number of cells; resistance increases with the number of bulbs.



MORE CELLS, MORE VOLTAGE



MORE BULBS, MORE RESISTANCE

Use this information plus Ohm's law to account for the amount of current in each of your circuits.

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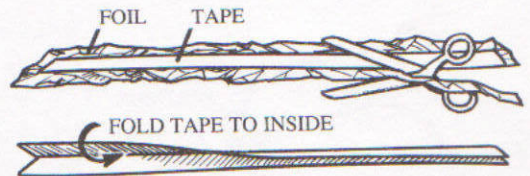
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IN PARALLEL



Electricity ()

1. Stick 20 cm of masking tape to a narrow strip of aluminum foil and cut around the edge. Fold this ribbon lengthwise with the foil inside.

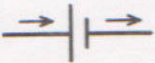


2. You will use this ribbon to build a parallel circuit. Before you do, explain why it is critical to point both cells in the *same* direction.

3. Diagram this circuit, then build it with a partner:

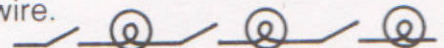
1 cell
1 cell
1 bulb + 1 switch
1 bulb + 1 switch

} in parallel

a. Add arrows to your diagram, showing the flow of electrons through the circuit. 

b. Would 1 cell last as long as 2 cells wired in parallel? Explain.

c. A worker wants to save wire by connecting all the lights in a house in series, using just one wire. Is this a good idea?



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