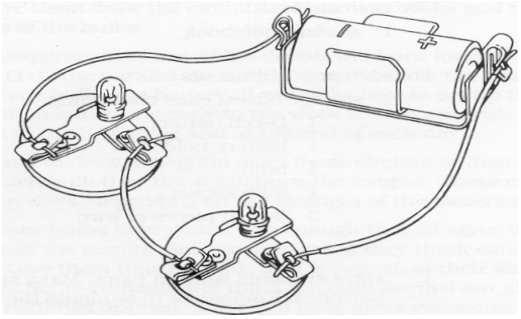
Electricity

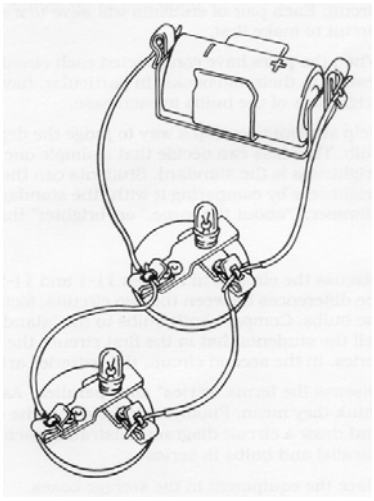
Series and Parallel Circuits

(Lesson 11)

Background: (What you're studying today) Today we will look at **two** different kinds of **circuits**. One type of circuit is called a series circuit. In a **series circuit**, the **electricity** has only **one way** to flow between its starting point, through the wires, batteries and bulbs and back to the starting point. The other kind of circuit is called a parallel circuit. In a **parallel circuit**, the **electricity** flows on **more than one path** throughout the circuit. Bulbs can be wired in a series circuit as shown below. When two identical bulbs are arranged in a series with one battery, both bulbs burn with the same brightness, but they are not as bright as one bulb alone. When two bulbs are wired parallel with one battery, as shown below, both bulbs will burn as brightly as one bulb alone. In one of these circuits, unscrewing one bulb will cause the other bulb to go out too. Which circuit do you think causes this to happen?



Series Circuit



Parallel Circuit

Question: (What you want to find out) Does unscrewing one bulb cause the other bulb to go out in a series or a parallel circuit?

Hypothesis: (Prediction) I think that unscrewing one bulb will cause the other bulb to go out in a **series circuit** **parallel circuit**.

Materials: (What you'll need) 1 series circuit 1 parallel circuit

Procedure: (Numbered steps needed to complete the investigation)

1. Connect a series circuit as shown above and make sure that both bulbs are lit.
2. Unscrew one bulb in the circuit (either one). Observe and record what happens.
3. Repeat steps 1 and 2 using a parallel circuit as shown above.

Data: (What happened)

Circuit:	Series Circuit	Parallel Circuit
Second Bulb Stays Lit?	Yes No	Yes No

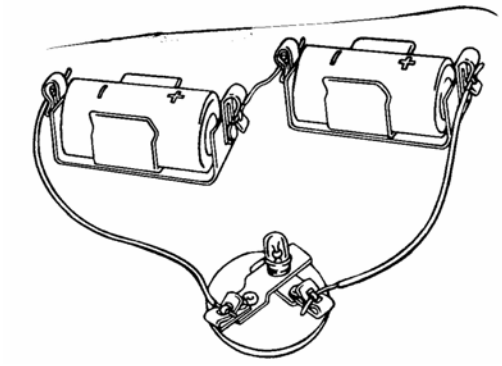
Conclusion: (What you learned) My hypothesis was **proven** **disproved** because unscrewing one bulb caused the other bulb to go out on a **series circuit** **parallel circuit**.

- In the series circuit, the electricity was flowing on **one** **more than one** path. Unscrewing one bulb **did** **did not** cause a break in the path which **did** **did not** cause the whole electrical pathway to shut down.
- In the parallel circuit, the electricity was flowing on **one** **more than one** path. Unscrewing one bulb **did** **did not** cause a break in the path which **did** **did not** cause the whole electrical pathway to shut down.

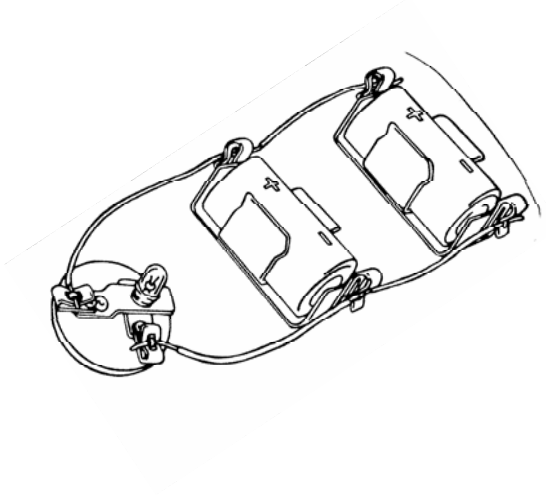
Discussion: (What else can you say?)

1. If you bought a string of lights to hang in your bedroom, would you want the lights to be on a series circuit or on a parallel circuit? Explain your answer.

2. One of the diagrams below shows 2 batteries and 1 bulb arranged in a series circuit and the other diagram shows 2 batteries and 1 bulb arranged in a parallel circuit. Can you label the circuits correctly?



_____ circuit



_____ circuit