

LIGHT-UP SIGNS

Learning Objective:

To investigate and analyse illuminated signs.



***Look at these signs. Why are they illuminated?
How many reasons for illuminating signs can you think of?***



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To give information.

To attract attention.



To give directions.

To advertise.



Did you think of these?



Front-lit Signs

(And a couple of back-lit signs, too)



This might be the simplest way to illuminate a sign. A light is shone on the surface of the sign so it can be seen more clearly.

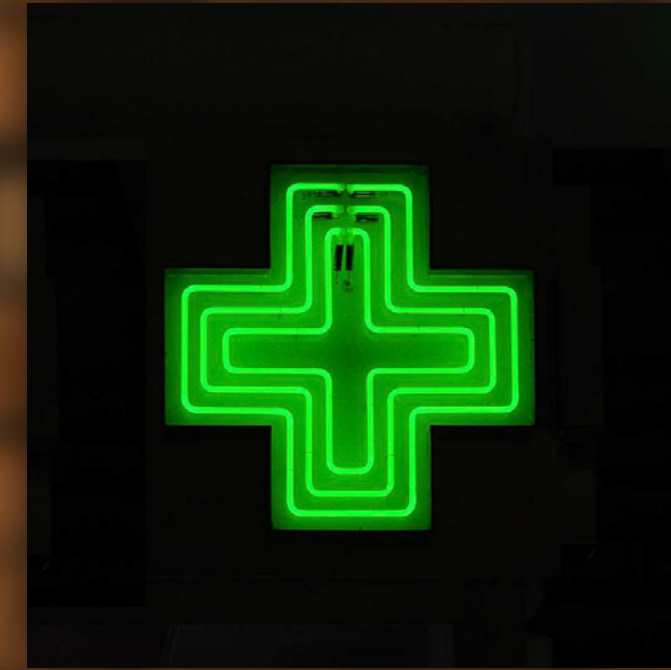
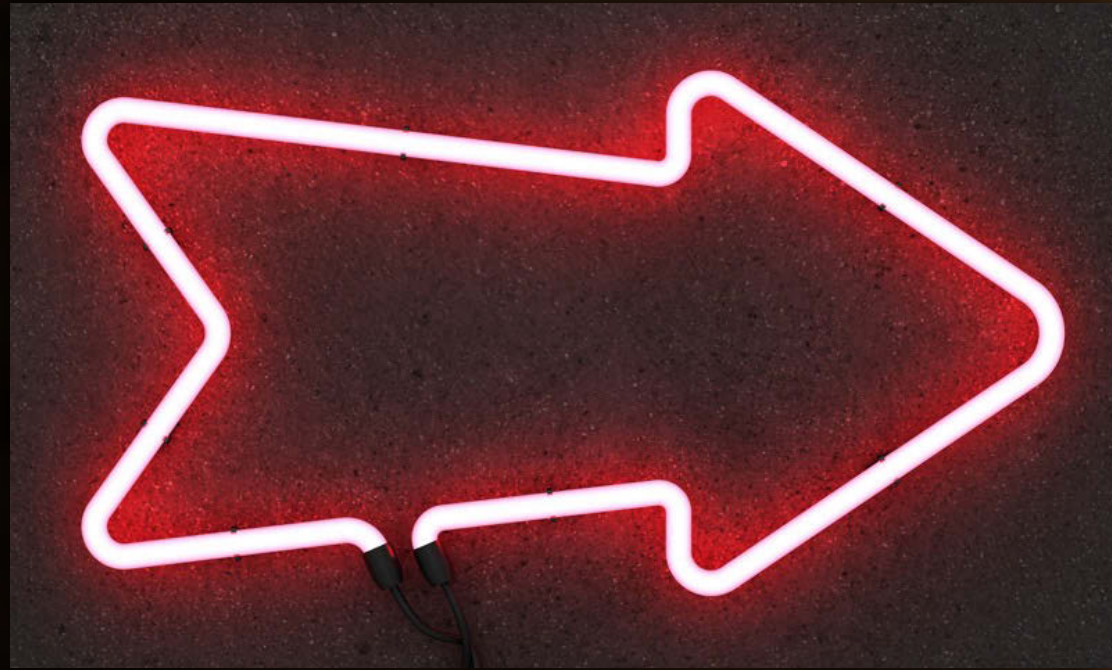
Sometimes, signs are back-lit, like the letters of this 'MANGO' sign.



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Neon Signs



Neon signs have been popular since the 1920s! How long ago was 1920?

These glass lamps are made in the shape of letters or images. They can be filled with different gases to make them glow different colours!

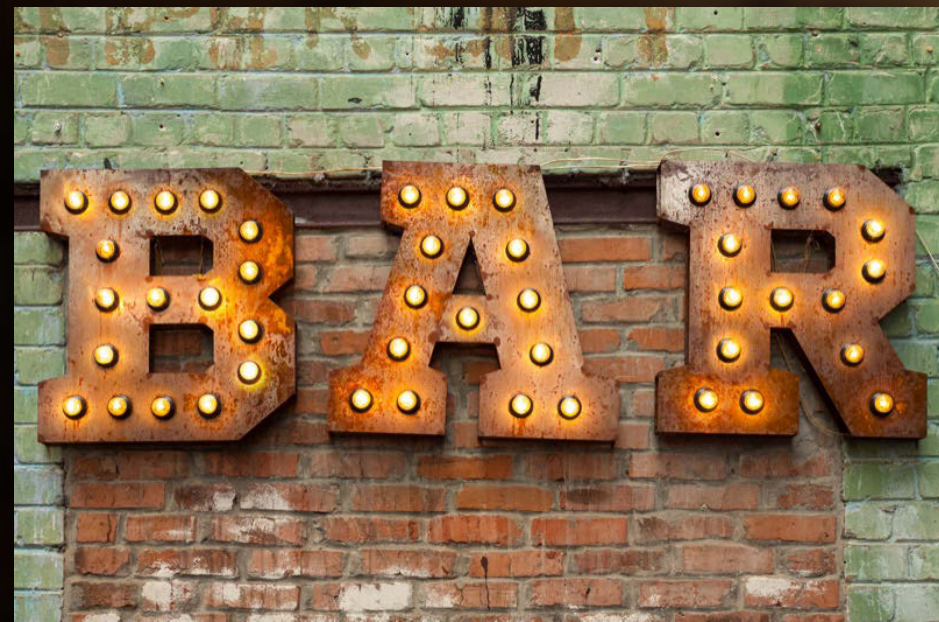


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Bulb Lettering

(And LED lettering, too)



Bulb lettering has been popular for a very long time, too. Lettering is lit up by several bulbs, or the letters themselves are formed from many, many bulbs.



Can you estimate how many bulbs are used in the 'TICKETS' sign on the left, above?

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Light boxes

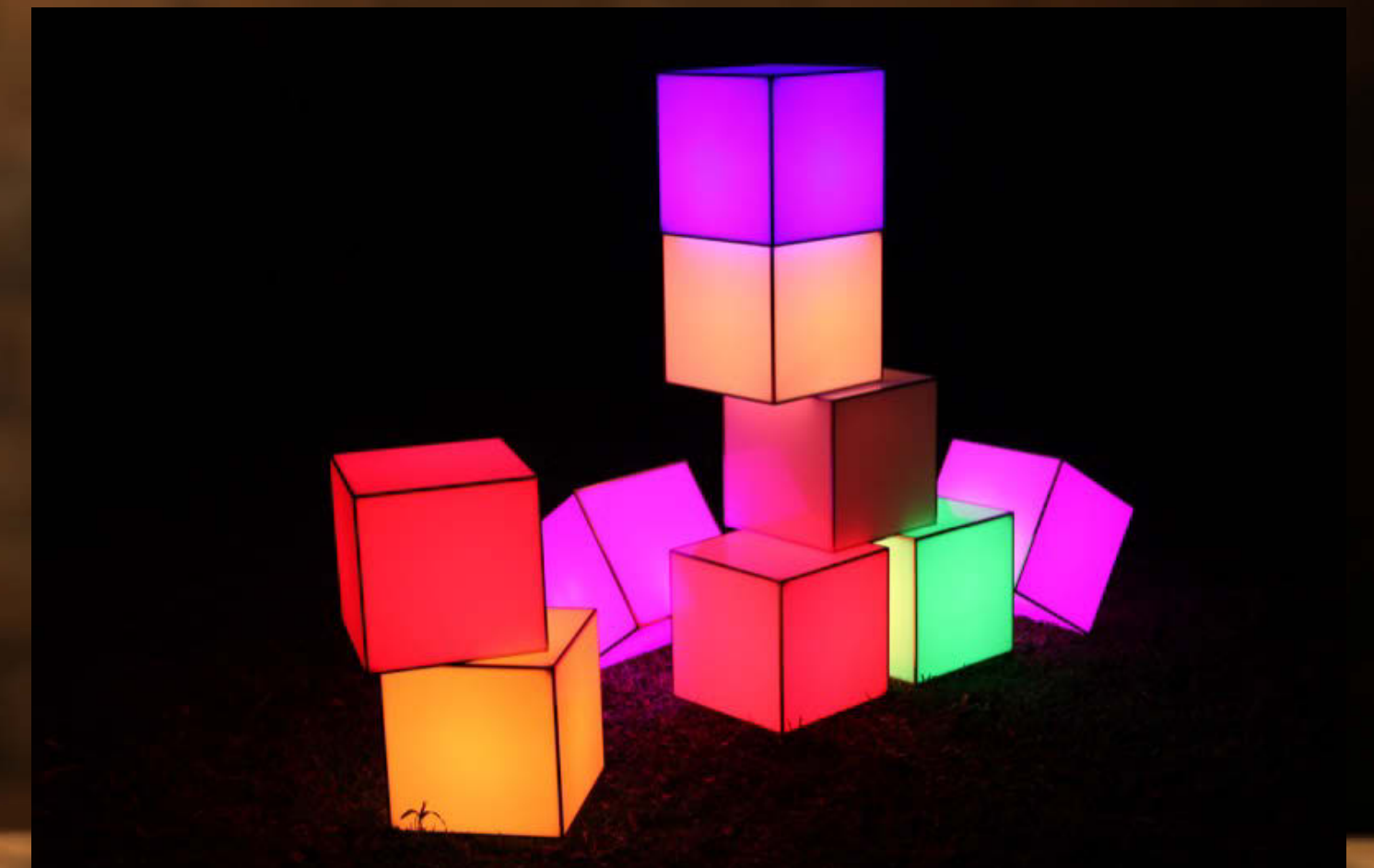
Light boxes are EVERYWHERE! They have a light (or several lights) on the inside. Part, or all of the box around the lights is translucent, letting light through. Some light boxes have letters in black, with the light around them. Others have black around the letters. Some light boxes, like the 'Superdry.' sign, are actually in the shape of letters!



Decorative Lights and Light-up Signs

These lightboxes and bulb lettering signs are small, decorative and fun to have at home!

Do you have any light-up signs like this where you live?



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Many of the signs we've looked at have at least one bulb in an electrical circuit.

Can you draw these electrical components, connected, to make a working circuit?



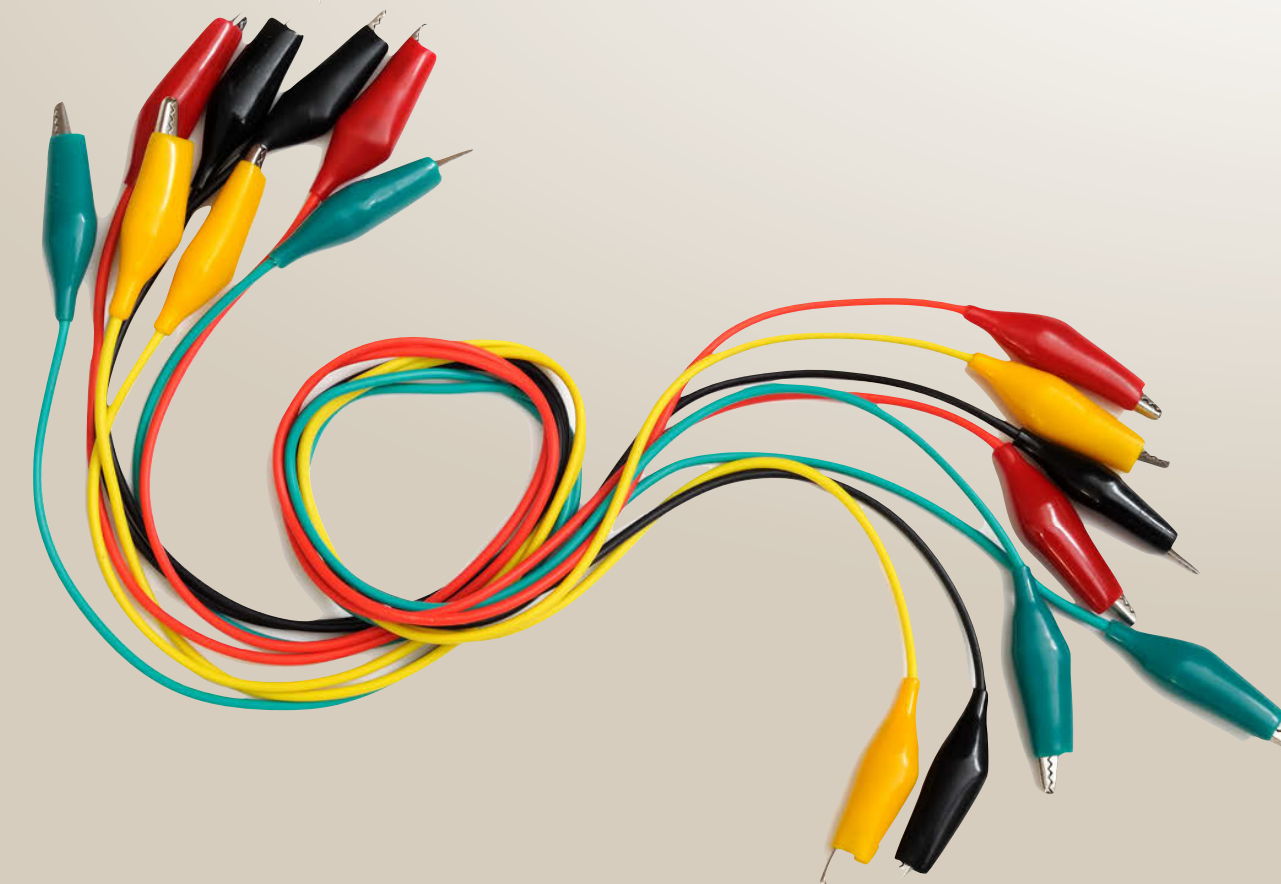
Power cell (sometimes incorrectly called a 'battery')



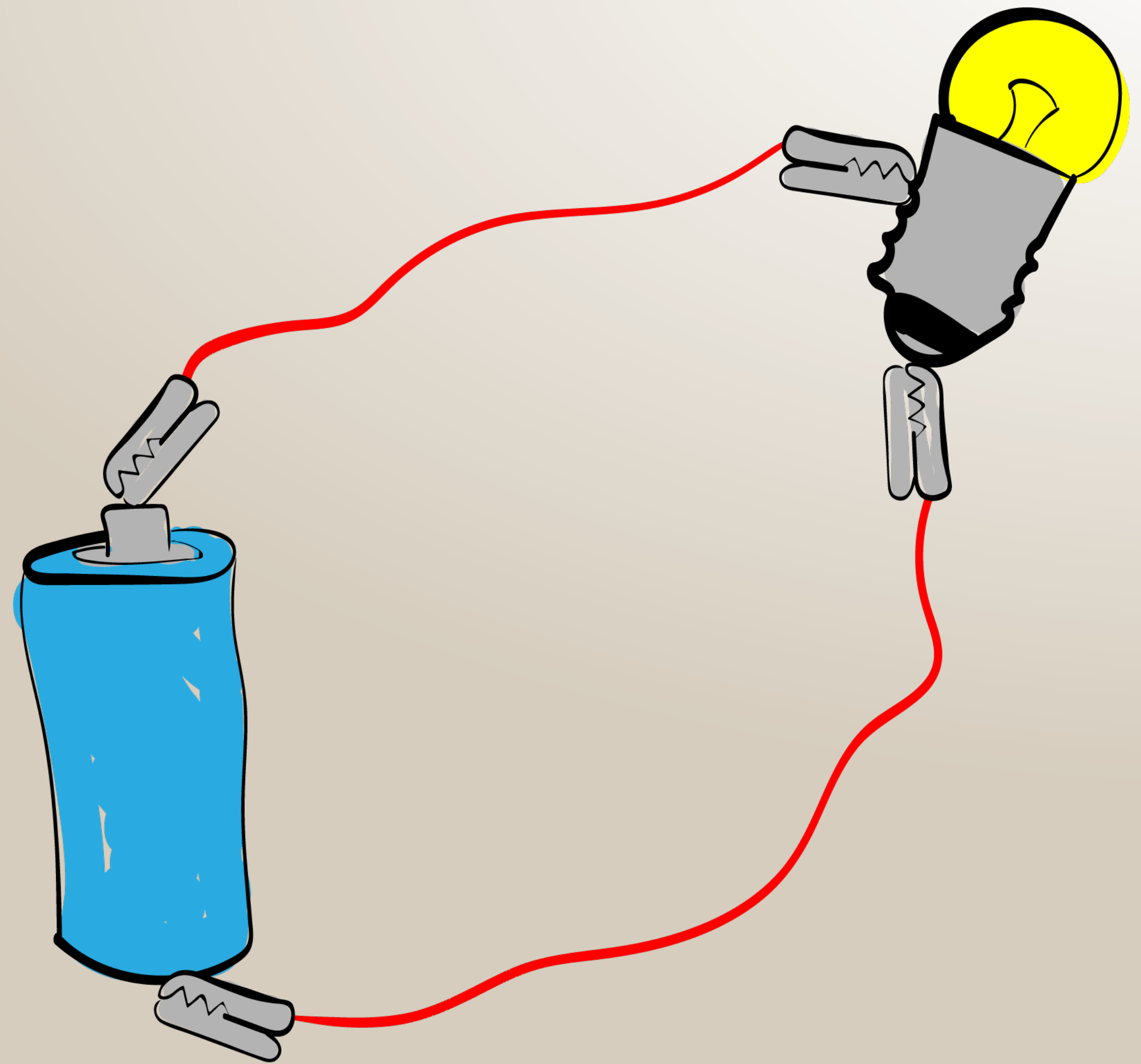
Bulb



Wires



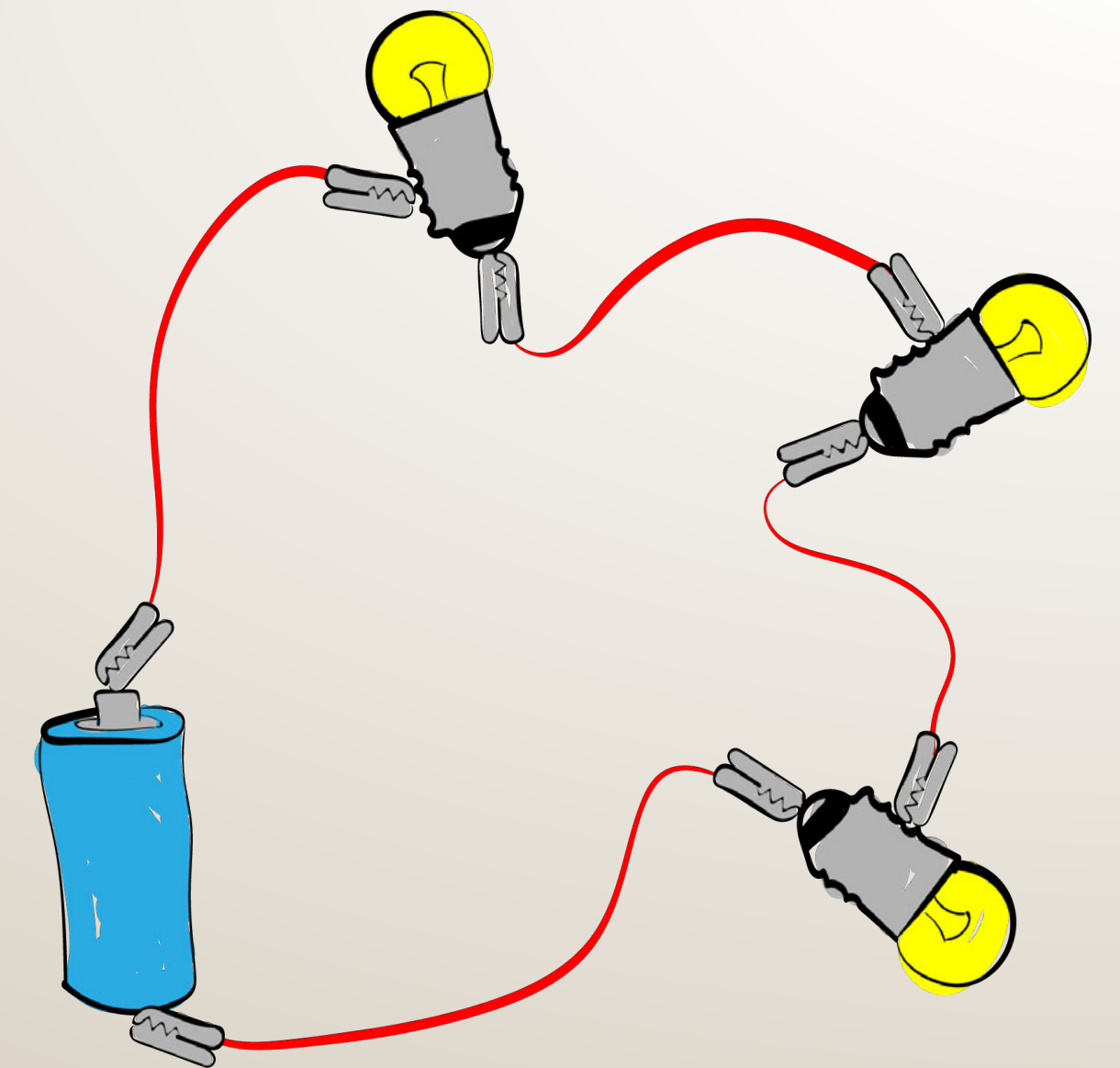
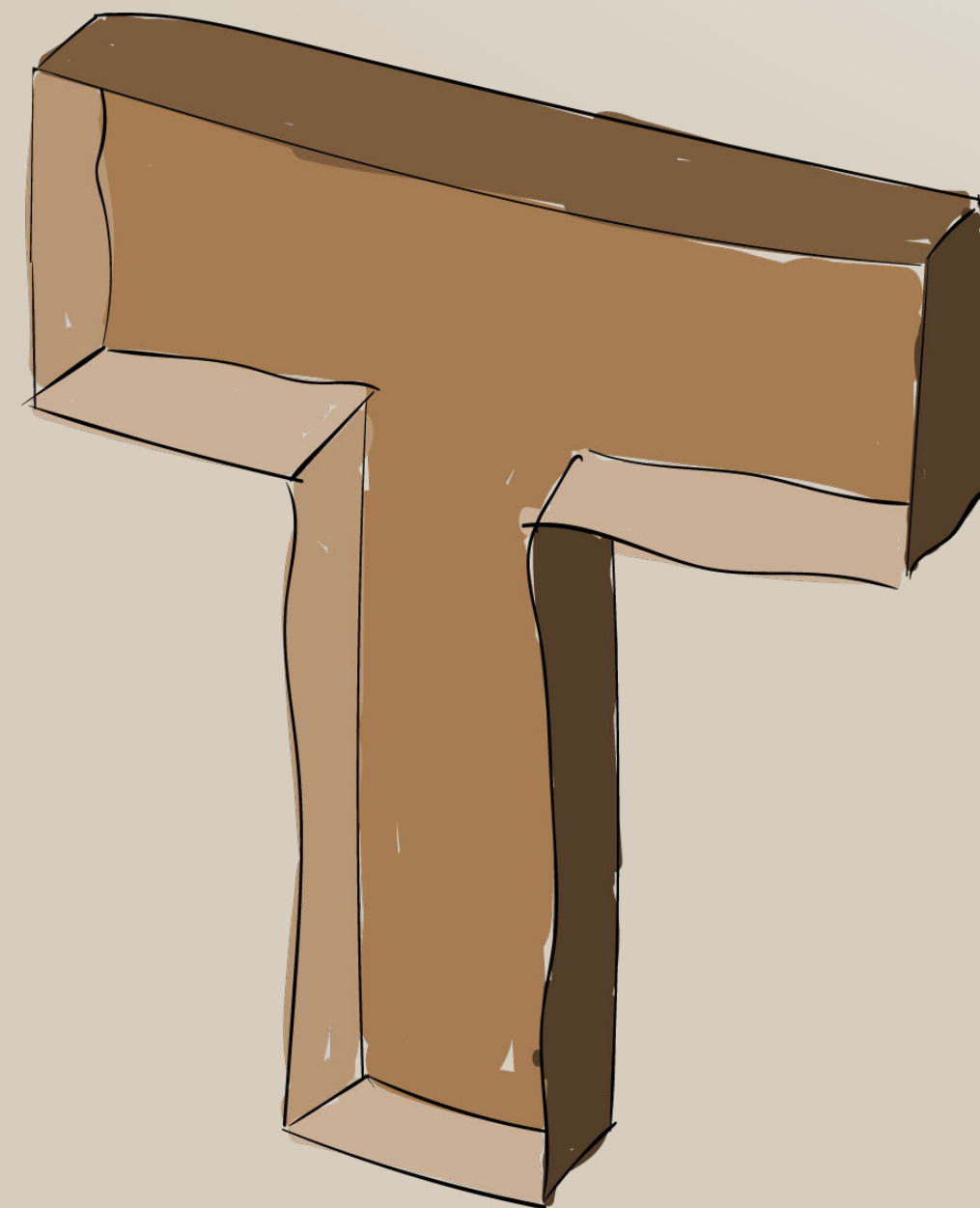
**Did
your circuit look
something like this?
Electrical circuits need to
make a complete,
closed loop in order
to work.**



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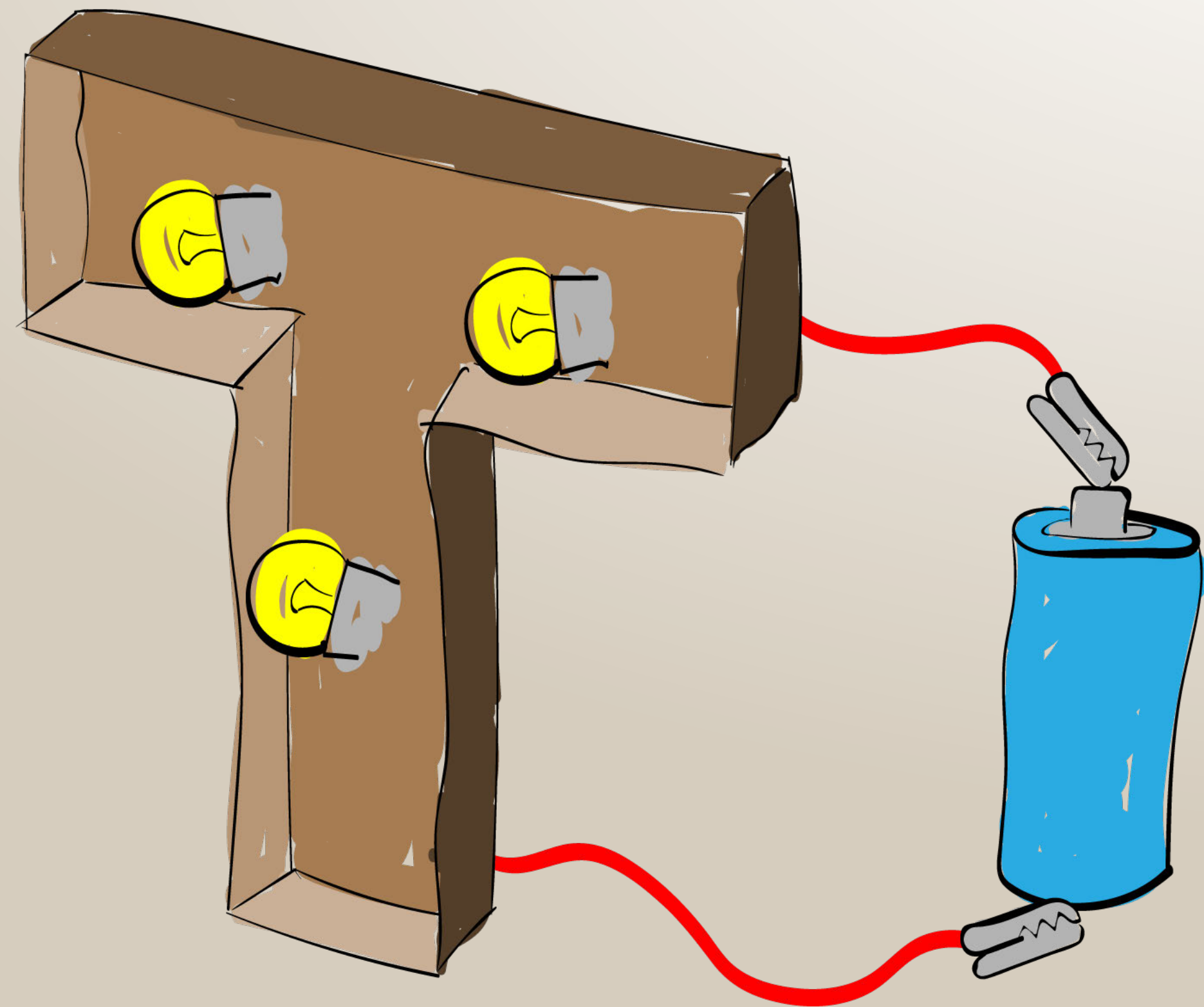
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How could we fit this series circuit with three bulbs inside this 'T' to make a light-up letter? Could we 'hide' some of the wiring?



We could make holes for the bulbs to poke through, hiding the wires behind the 'T' shape.

Did you think of this? Did you have a different idea?



Plenary



What do you think might happen if too much electricity flows from the power supply, through the lightbulbs in this sign?

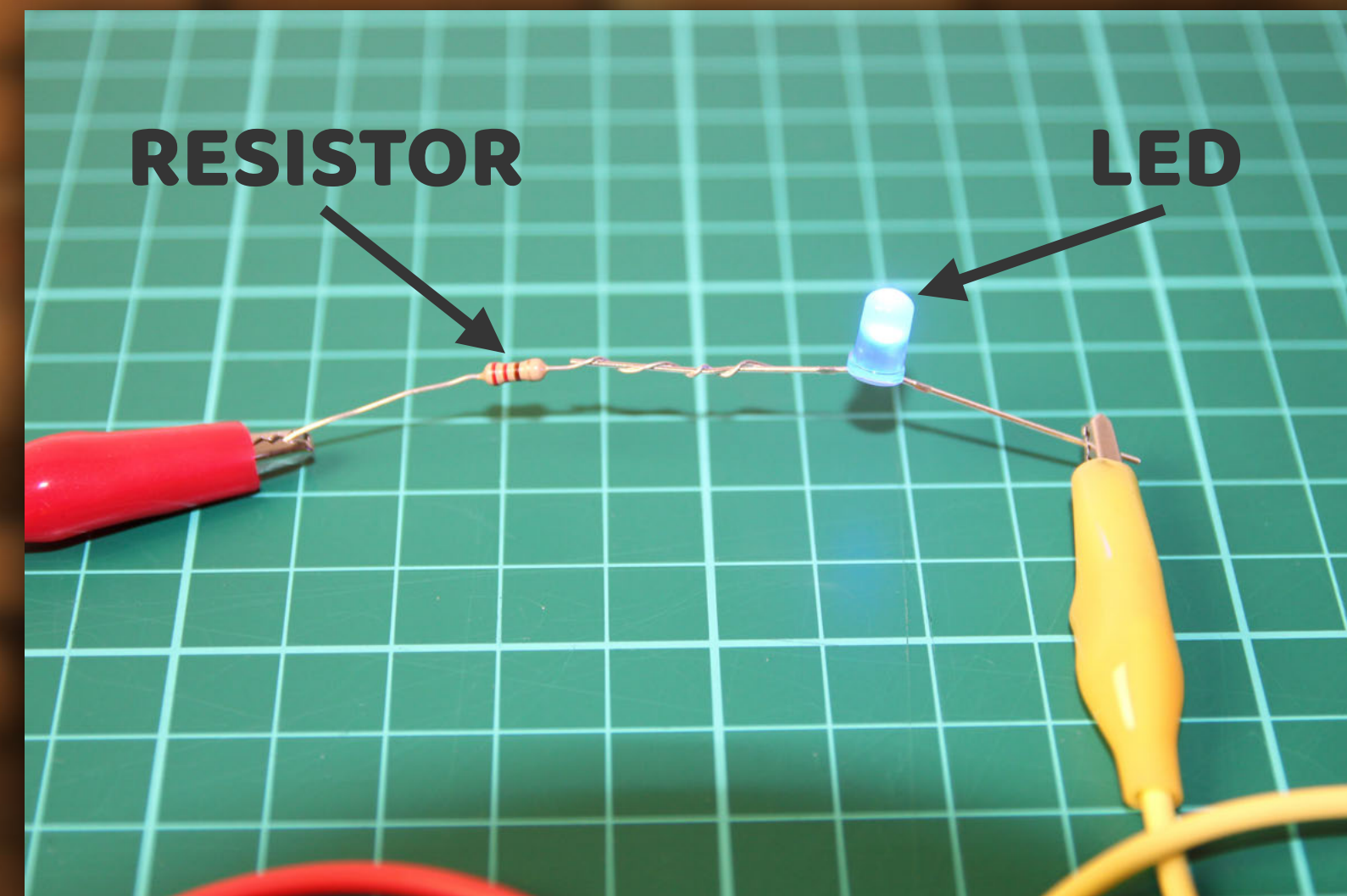
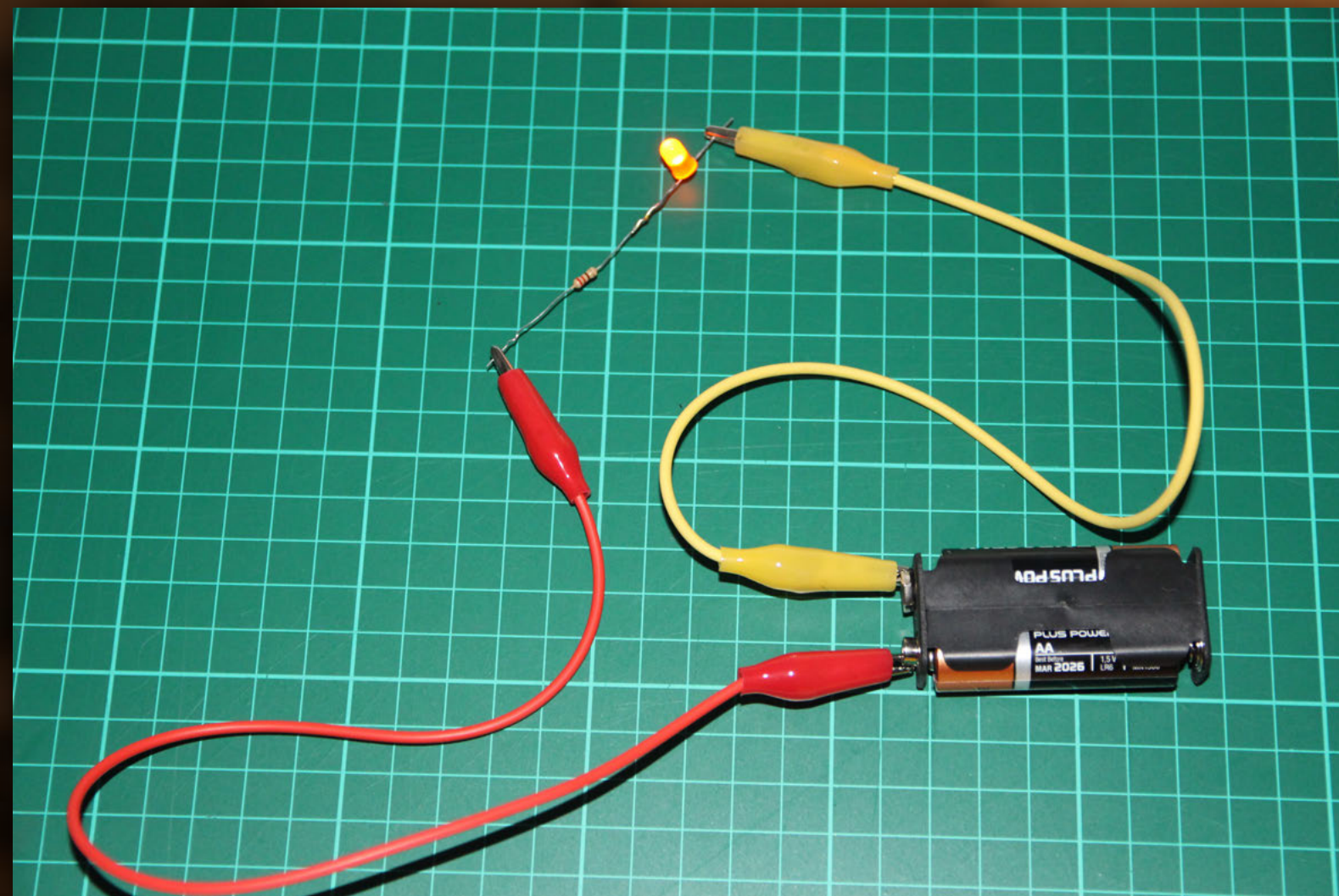


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Plenary

Because bulbs can break if too much electricity flows through them, some circuits have extra, special components to protect them.



This circuit has a resistor. The resistor reduces the flow of electricity through the LED.

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