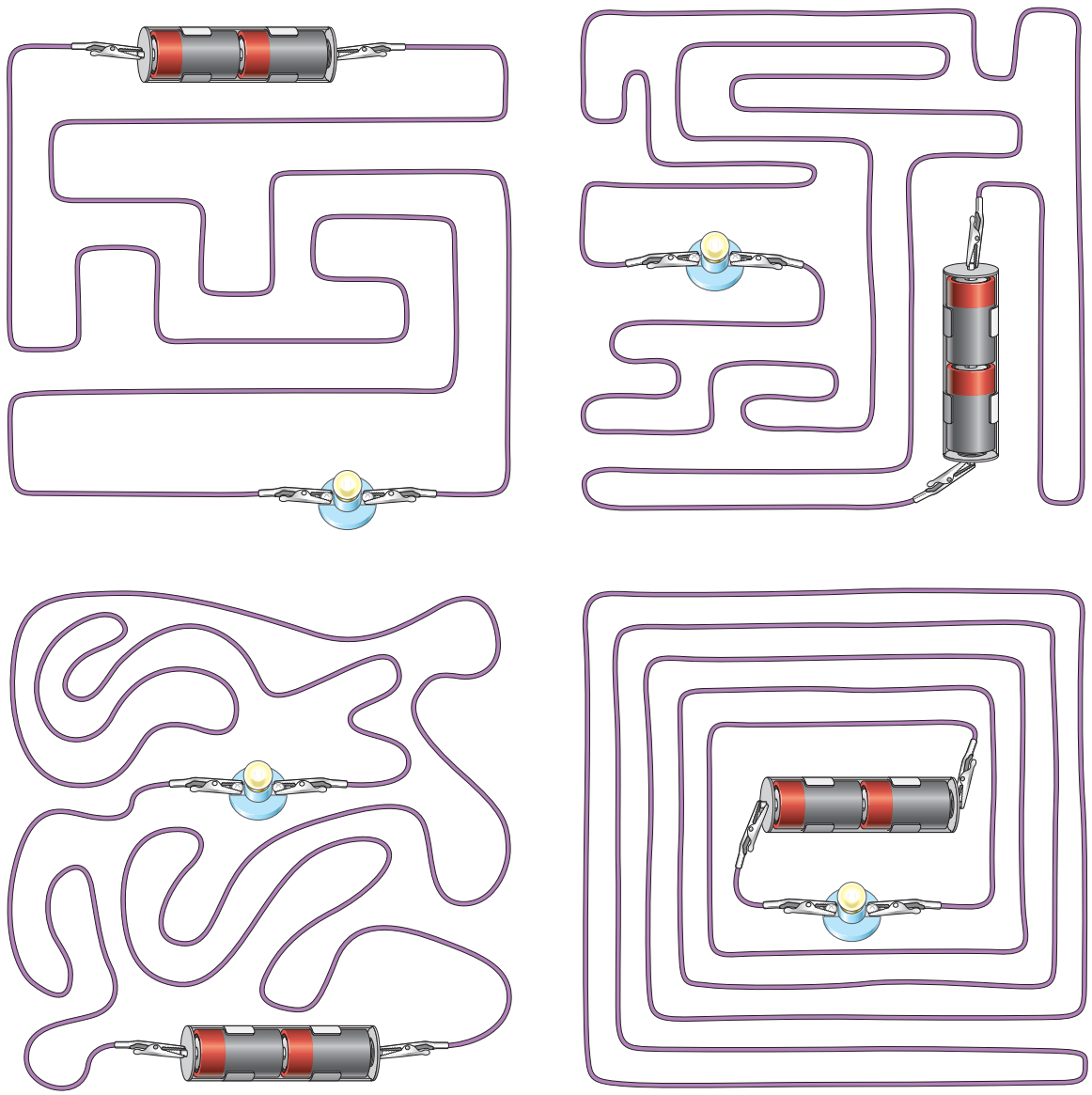
8 Circuits that will and will not work

A circuit only works when it makes a loop.

Electricity must flow in a loop. The shape of the loop and the length of the loop do not matter much (Picture 1). But, the loop must start at one end of a battery and finish at the other end. The things you want to make work must be fitted into this loop.

What you notice in Picture 1 is that long loops can be tangled and difficult to follow. This is why complicated circuits are often put on to circuit boards.

▼ **(Picture 1) The length and shape of the connector are not important. All of these circuits work exactly the same way.**



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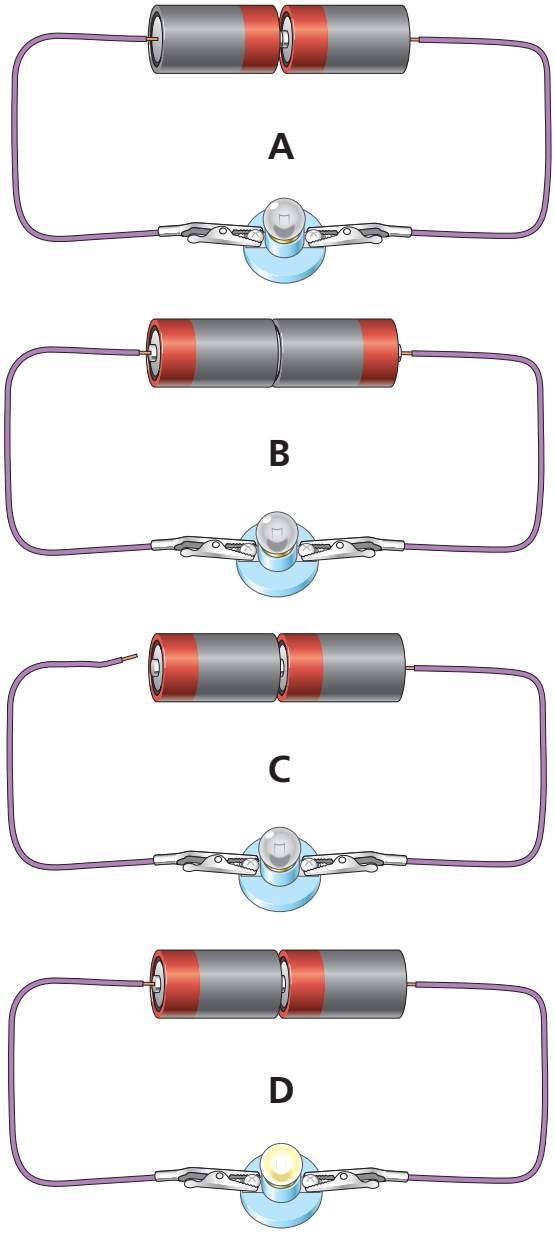


▲ (Picture 2) Circuits A, B and C will not work. The correct circuit is D.

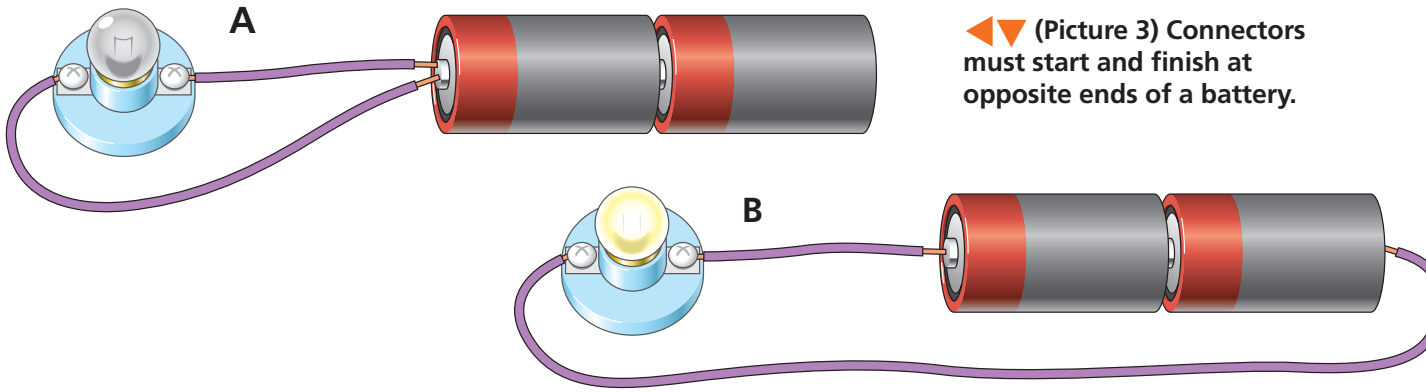
Circuits that won't work

The rules for making a circuit work are simple, but very strict. The rules also include the batteries. Picture 2A shows you a circuit that won't work because the batteries are placed facing one another. Picture 2B shows a circuit that won't work because the batteries are placed facing away from one another. Picture 2C shows a circuit that won't work because a wire is not connected. To work, the batteries must always face in the same direction and all wires must be connected (Picture 2D).

A loop must start from one end of a battery and finish at the other end. Picture 3a shows a circuit with the connectors both starting from the same end. This won't work. The correct circuit is shown in Picture 3b.

Summary

- Circuits only work when the connections all form a loop from one end of the battery to the other.
- Circuits only work if good connections are made between components.



◀▼ (Picture 3) Connectors must start and finish at opposite ends of a battery.

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