

CIRCUITS

A simple electrical circuit can be thought of as a single loop, rather like a train set with a circle of track. If the track does not form a complete circle, the train can not go all the way around – no current can flow. The train can only travel right around when the circle is complete.

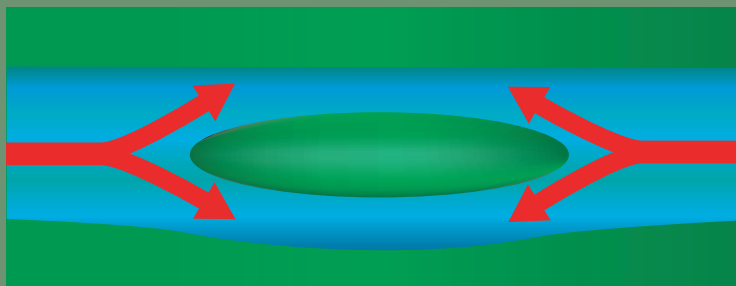


Series circuits

The train set mentioned above is an example of a series circuit – the current has only one possible path to follow.

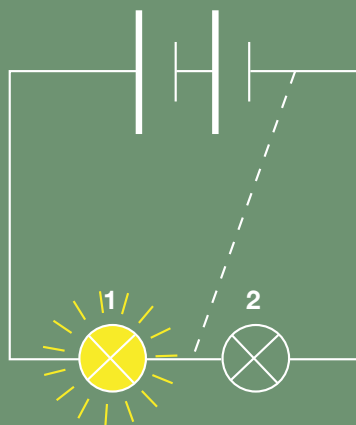
Parallel circuits

In a parallel circuit, the current can flow along more than one path. Think of a river with a long, thin island in the middle. Water can go both sides of the island, some goes to the left, some goes to the right. Both sides join up again at the other end of the island. The two possible routes the water can take are said to be ‘parallel’ because they both start and stop in the same places.



Short circuits

A short circuit is the name given to a fault in a circuit that accidentally bypasses some parts of the circuit (a bit like taking a shortcut in a race). You do not complete the whole circuit. In reality, short circuits are usually caused by wires touching each other; solder blobs bridging two tracks on a circuit board; or a faulty or damaged component or connector.



Normally the circuit above lights both bulbs 1 and 2, but the short circuit bypasses bulb 2 so no current flows through it and it does not light up. Bulb 1 continues to light because the current still flows from the battery through bulb 1 and back to the battery.