How electricity flows around a circuit

KS4 PHYSICS Ages 11-14 ⏰ 3 min read

What is a circuit?

A **circuit** is a closed loop that electricity travels around. It needs three main things to work: a **power source** (like a battery), **wires** to carry the electricity, and **components** (like light bulbs or motors) that use the electricity. If any part of the loop is broken, electricity cannot flow.

Think of it like a water slide at a swimming pool. Water flows down the slide, splashes into the pool, gets pumped back up, and slides down again. It keeps going round and round in a loop.

How does electricity start flowing?

Inside a **battery**, chemical reactions create an **electric charge**. This charge builds up pressure, just like air pressure in a pump. The battery has two ends called **terminals**: the **positive terminal** (marked +) and the **negative terminal** (marked −). This difference in charge creates a force that pushes electricity out of the positive terminal through the circuit.

Following the flow

Electricity flows from the positive terminal of the battery through the wires and components, and then back to the negative terminal. As it travels, it passes through **resistors** and other parts that slow it down and use its energy. This energy is what lights up a bulb or powers a motor.

Think of it like a postman delivering letters. The letter starts at the post office (battery), travels along streets (wires), gets delivered to houses (components), and eventually returns to the sorting office.

Why does the loop matter?

The circuit must be a complete loop for electricity to flow. Even a tiny gap or **break** will stop everything. That's why a **switch** works—flipping it on or off opens or closes the loop. When you switch off a light, you're breaking the circuit.

Speed and strength

Electricity doesn't actually travel very fast—about **one-third the speed of light**. But it feels instant to us because circuits are short. The amount of electricity flowing is called **current**, measured in **amps**. **Voltage** is the force pushing the electricity around, like water pressure in a pipe.

Think of voltage like the steepness of a hill and current like the amount of water flowing down it.