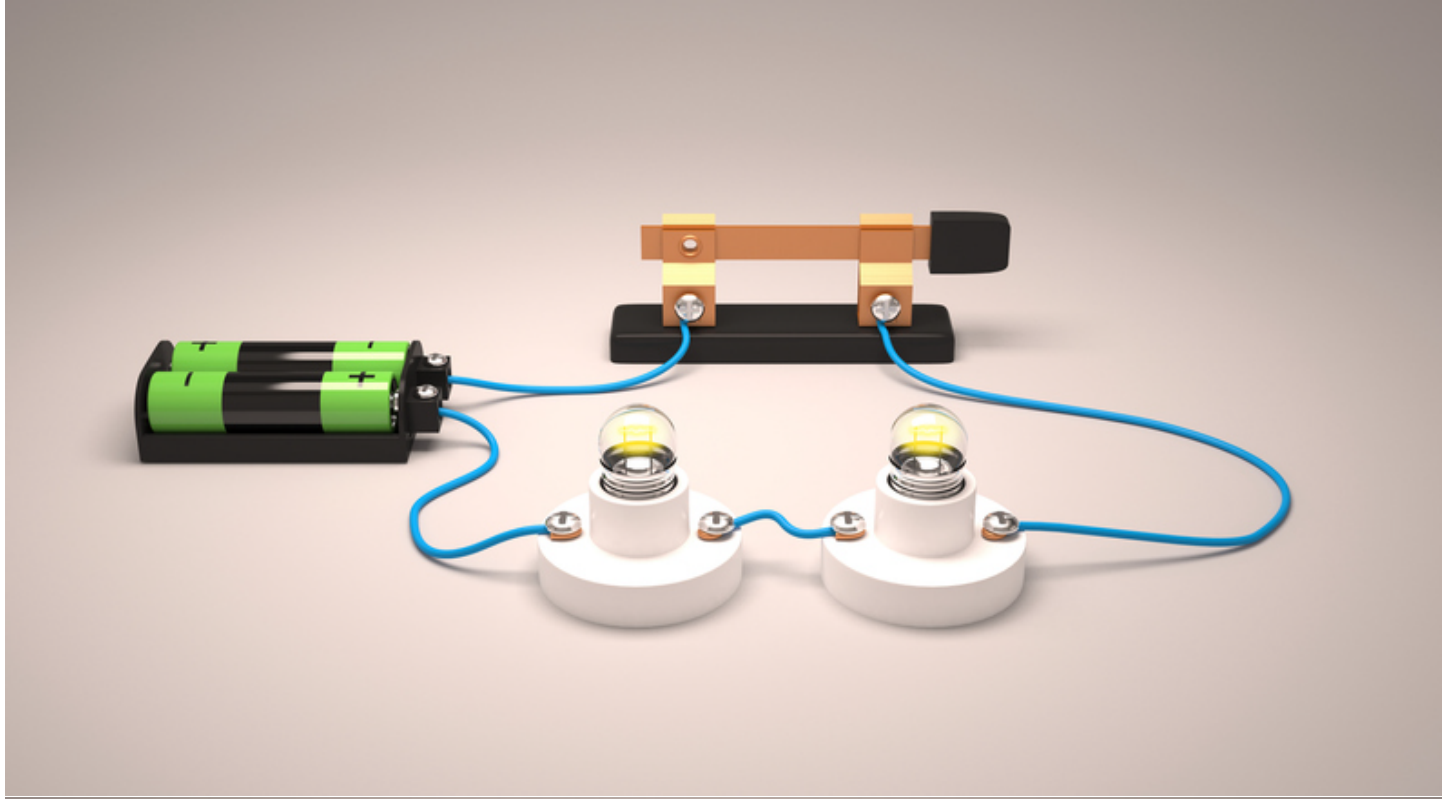
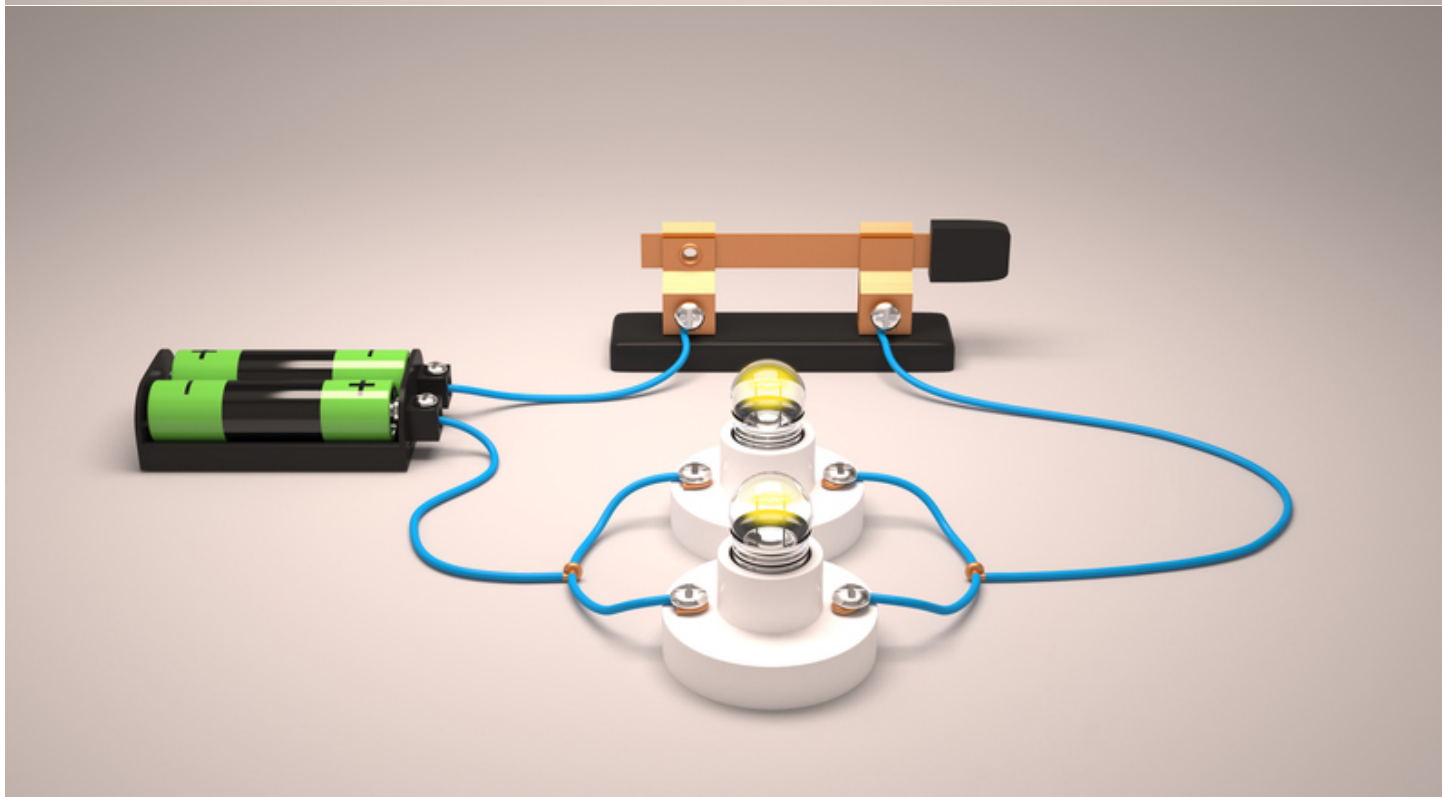
Making Simple Electrical Circuits





Studyladder

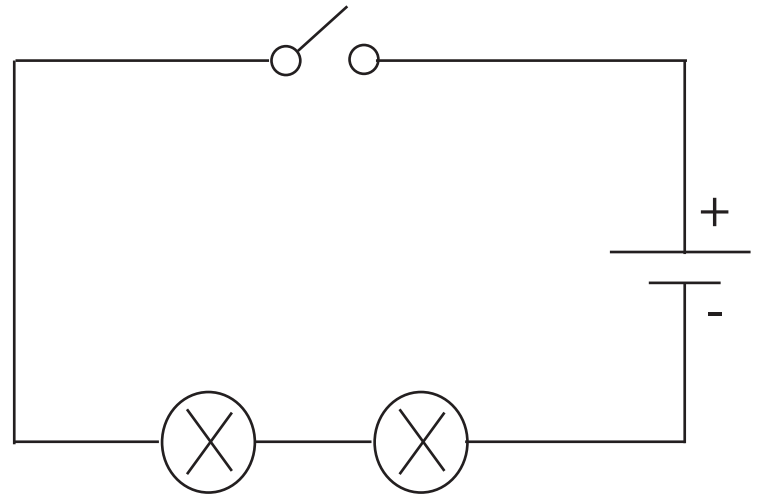
Circuits in Series

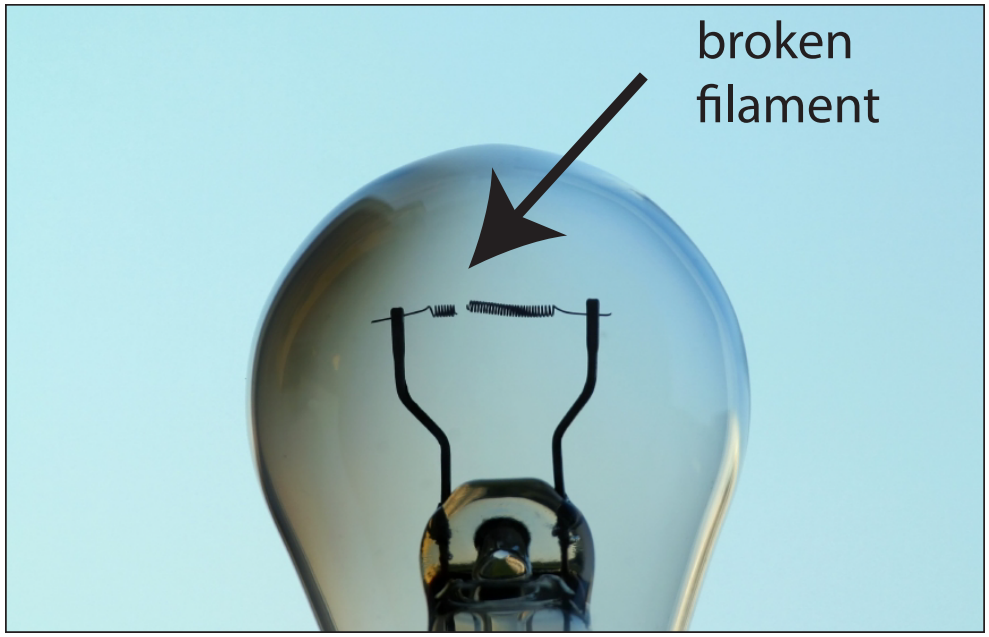
When one or more components are connected in the same loop of a circuit we say they are in ***series***.

The two light bulbs in this circuit are in series. Interestingly, if one lamp breaks the other will not light.

This is because each light bulb has a thin wire inside it called a filament. If the filament breaks the circuit is broken and electricity cannot flow.

A circuit with two light bulbs in series





Circuits in Parallel

When one or more components are connected in separate loops of a circuit we say they are in ***parallel***.

The two light bulbs in this circuit are in parallel. The current is shared between the two loops. This means that even if one bulb breaks the other will still work.

Appliances need to be connected to your home's electrical circuit in parallel. This way, if one appliance breaks the others will still work. Your home may be supplied by a number of different circuits.

Circuit breakers detect when something is wrong in the circuit. For example, when a unit in the circuit is overheating the circuit breaker automatically shuts down that circuit to prevent further damage.

Homes have multiple circuits to share the electricity load. The lighting in an average house may be wired into one or two circuits. Power supply for appliances may be separated into five or six different circuits.

Appliances that use a lot of power, such as air conditioners, usually run in their own dedicated circuits. This means that if the air conditioning circuit blows, the refrigerator will not be affected, preventing food spoilage.

A circuit with two light bulbs in parallel