



Science

7J Current Electricity

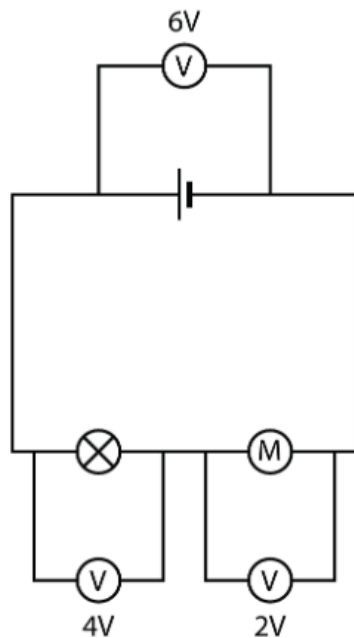
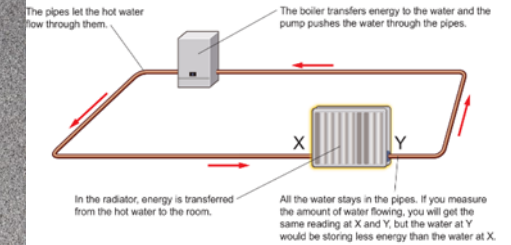
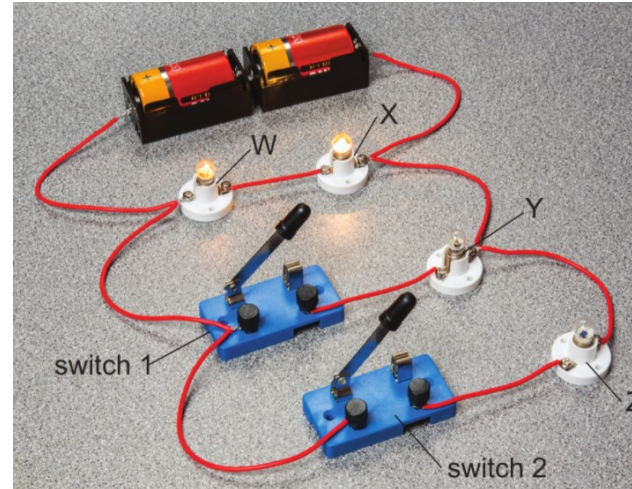
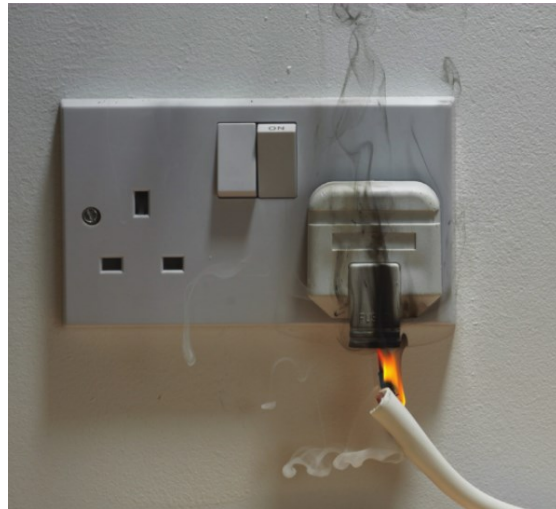
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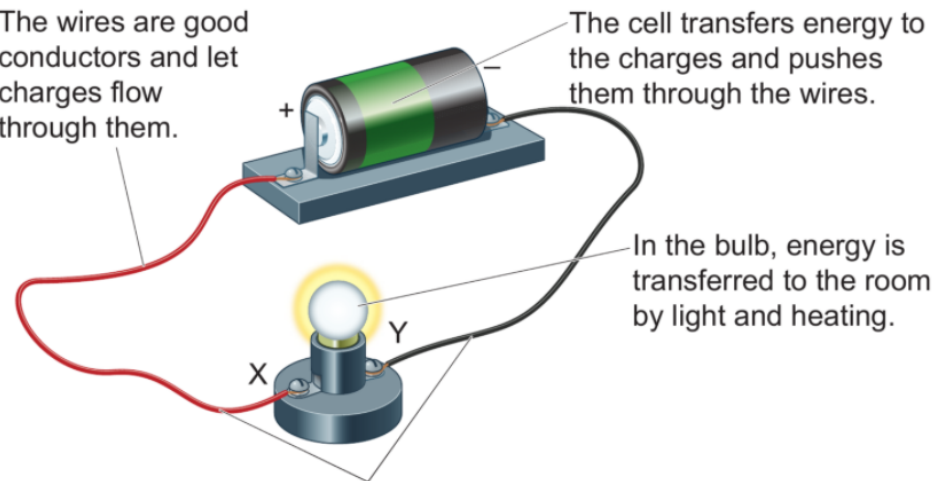
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Lesson

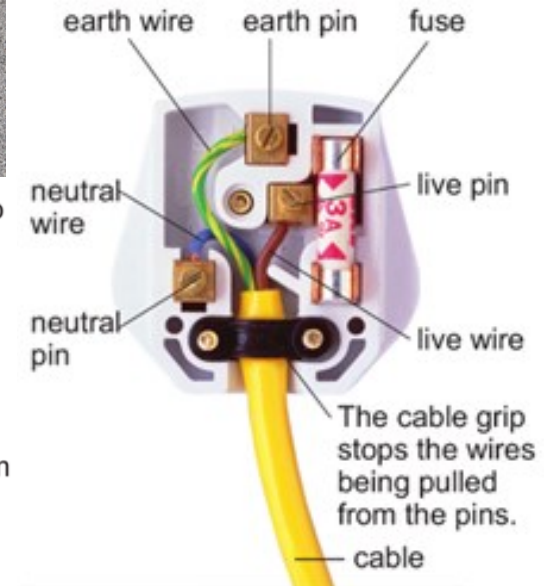
- 1. Switches and Current
- 2. Models for Circuits
- 3. Series and Parallel Circuits
- 4. Changing the Current
- 5. Using Electricity



The wires are good conductors and let charges flow through them.



All the charges stay in the wires. If you measure the current, you get the same reading at X and Y. The current at Y has less energy.





1. Switches and Current	
Component	Something in a circuit.
Switch	Closing a switch completes the circuit allowing the current to flow.
Bulbs	Electricity flowing through makes the filament glow.
Current	The amount of electricity flowing around a circuit. Measured in amperes (A).
Current in a Series Circuit	Current is not used up as it goes around the circuit, it is the same everywhere.
Ammeter	Used to measure current.

2. Models for Circuits	
Models	A way of showing or representing something.
Advantages of Using Models	Allow us to help think about complicated ideas in science.
Charges	An electric current is a flow of charges carrying energy from the cells to the components.
Conductors	Charges can move through them easily (e.g. metals).
Insulators	Charges cannot move through them easily.
Model Example Explanation	Boiler represents the cell Pipes represent the wires The radiator represents a component Water represents the current
3. Series and Parallel Circuits	
Series Circuit	A circuit with all the components in one loop.
Parallel Circuit	A circuit with branches that split apart and join again.
Parallel Circuit Advantages	Each bulb/component can be turned on individually. If one bulb/component breaks the components in other branches stay on (unlike a series circuit).
Current in a Parallel Circuit	The current splits when it reaches a branch. The current in all the branches add up to the current in the main part of the circuit.
Adding Bulbs	If you add bulbs into a series circuit the current gets smaller and the bulbs dimmer. In a parallel circuit if you add bulbs on different branches they stay bright.

4. Changing the Current	
Voltage	A way of saying how much energy is transferred by electricity. The voltage of the cell helps push the charges around the circuit. Measured in volts (V).
Voltmeter	Used to measure voltage.
Voltage in a Series Circuit	The voltage across all the components adds up the voltage across the cell.
Resistance	How difficult it is for electricity to flow through something.
Resistor	A component that makes it difficult for electricity to flow - reduces size of current.

5. Using Electricity	
Hazard	Something that could cause harm.
Risk	The chance that a hazard will cause harm.
Electricity Risks	Can cause fires, burns to the body and stop the heart from working.
Reducing Risks	Don't touch bare metal parts of plugs, don't poke things into sockets, keep water away from electricity, don't plug too many things into a socket and never use a damaged wire.
Fuse	A wire that melts if the current is too high, breaking the circuit.
Circuit Breaker	Cuts off the current if it is too high.
Plug Wires	Live and neutral wires make an appliance work; earth wire is for safety.

