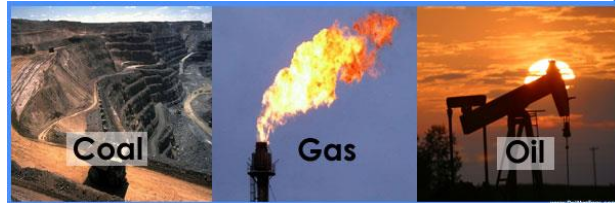


### How is electricity generated?

Lightning and static electricity are examples of electricity occurring naturally. but for us to use electricity to power appliances, we need to make it.



Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to generate electricity.



Electricity can be generated from wind power used to turn windmills and hydroelectric power from water used in dams. The Sun's rays can be converted into electricity by solar panels.

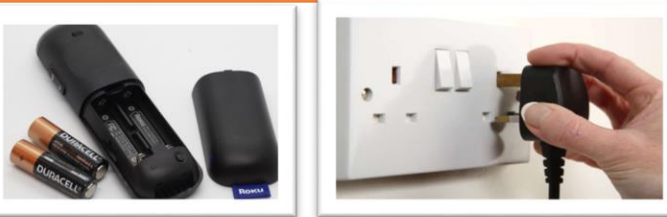
**Battery electricity:** batteries store chemicals which produce an electric current. Eventually, they will stop producing an electric current and need to be replaced with new batteries.



**Nuclear energy** is created when atoms are split. This creates heat which can be used to generate electricity. Geothermal energy is heat from the Earth that is converted into electricity.

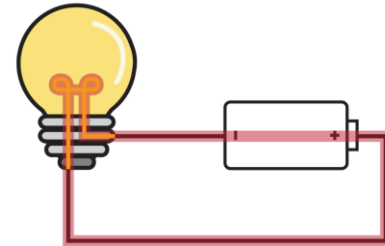
### Appliances

Many everyday appliances rely on electricity for them to work. Some appliances need to be plugged into a socket (mains electricity) and others have a battery to make them work.



**Mains electricity:** power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes via wires in the walls and out through the plug sockets.

Electricity can only flow around a complete circuit that has no gaps. There must be wires connected to both the positive and negative end of the power supply/battery.



**Switches** can be used to open or close the circuit. When off, a switch 'breaks' the circuit to stop the flow of electrons. When the switch is on, the circuit is complete and the electrons are able to flow around the circuit.



A **conductor** of electricity is a material that is made up of free electrons which can be made to move in one direction, creating an electric current. Metals are good conductors. Electrical **insulators** have no free electrons and so no electric current can be made. Wood, plastic and glass are good insulators.



Electricity	The flow of an electric current or charge through a material e.g. from a power source through wires to an appliance.
Generate	To make or produce.
Renewable	A source of electricity that will not run out. These include solar, nuclear, geothermal, hydro & wind.
Non-renewable	This source of energy will eventually run out and so will no longer be able to be used to make electricity.
Appliances	A piece of equipment or device designed to perform a particular job, such as a washing machine or mobile phone.
Battery	A device that stores electrical energy as a chemical.
Circuit	A pathway that electricity can flow around. It includes wires and a power supply and may include bulbs, switches or buzzers.
Electrons	Small particles with an electric charge.
Atom	The atom is the basic building block for all matter in the universe. Atoms are extremely small and are made up of a few even smaller particles.