

= It's a type of we use to power electrical devices and machines. It's the flow of electrons and protons.

Electricity

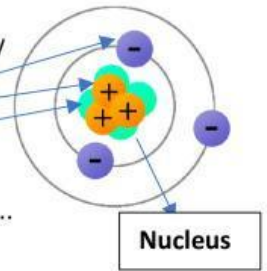
Atom

= It's the smallest unit of matter.

- It has 3 types of particles

- E..... have negative charge. They can move from one atom to another one.
- P..... have a positive charge.
- N..... have no charge.

- They usually have the same number of protons and

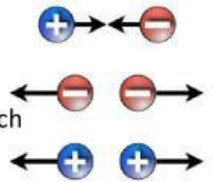


Electrical charge

- Neutral:** There is an equal number of protons and electrons
- Positive:** There are more protons than electrons.
- Negative:** There are more electrons than protons.

- Objects that have

- Opposite charges** (+ -).....each other.
- Equal charges** (++ or --) each other.



Static electricity

- It doesn't f.....
- Electrons are transferred from a negatively charged object to a positively charged object. - → +
- E.g., Electrical storms, rubbing a pen against your clothes

Forms

-
or
current electricity

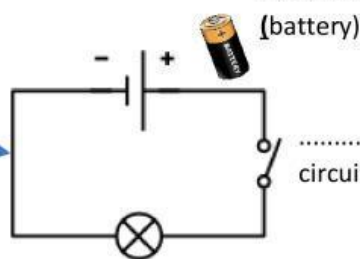
- It is the flow of electrons through electrical

- Materials can be

- Conductors:** They allow electrons to move easily. E.g., water, copper, aluminium, gold, silver...
- Insulators:** They don't allow electrons to move easily. E.g., rubber, plastic, wood, glass, porcelain...

Electrical circuit

.....
(wire)



.....
(battery)

..... (to open or close the circuit).



..... (light bulb)



It converts electricity into another form of energy, for instance, light

- It can be generated from
 - Non-renewable energy sources**
 - Burning fuels in thermal plants generates to move turbines. A turbine is connected to a which converts energy into electricity.
 - Steam is also used to generate electricity from the energy produced from uranium in power plants.
 - Renewable energy sources**
 - Energy is collected by panels, wind turbines and hydroelectric plants.
 - The energy is passed to a which spins a generator to make electricity.

- = magnetism created when electricity flows through magnetic metals (only while the electrical current is switched on)

- Other
 - Rubbing** two objects against each other → electricity
 - A **reaction** in a **battery** → electricity

- How does electricity reach our homes?
 - Electricity is generated in p..... p.....
 - Generated electricity goes to a s..... where a t..... increases its voltage.
 - Electricity is carried over long distances by high-voltage p..... l.....
 - When electricity arrives at a substation the voltage is reduced to a s..... l.....
 - Electricity is then passed on to e..... p..... who supply homes with power.

Robots

= machines that can be programmed to do some tasks

- Advantages
 - They s time.
 - They can do repetitive tasks q.....
 - They can be used in s
 - They can do dangerous j
 - They do not need b.....
-
 - They can be e.....
 - They need p.....
 - They can cause people to l..... their jobs.
 - They can b..... down or malfunction.