

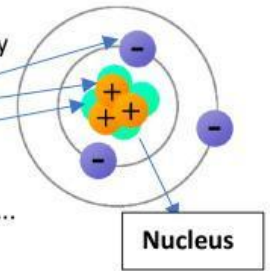
= It's a type of ..... we use to power electrical devices and machines. It's the flow of electrons and protons.

**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.



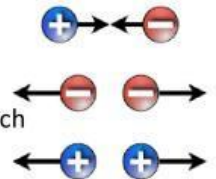
• They usually have the same number of protons and .....

**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.



**Electricity**

**Forms**

➤ **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

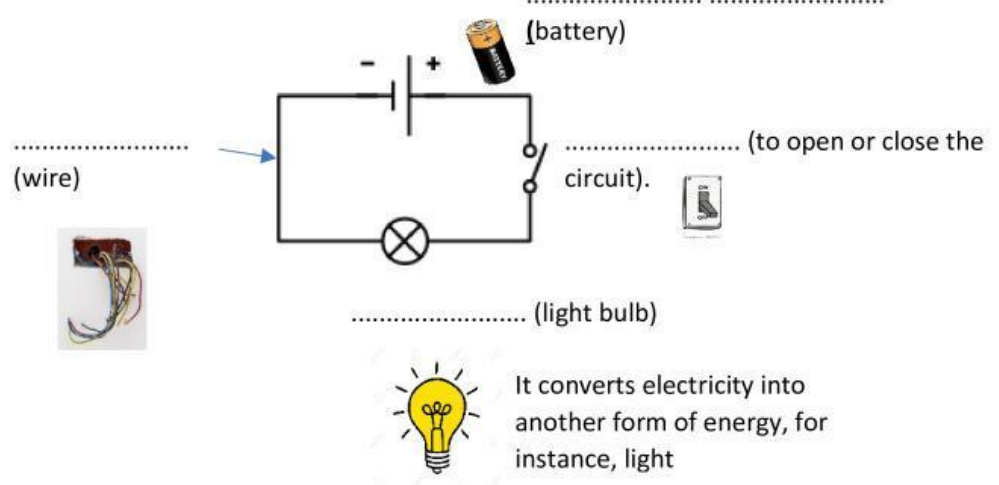
➤ .....  
or  
**current electricity**

• 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**



- 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**
  - 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.

= machines that can be programmed to do some tasks