

**KNOWLEDGE ORGANISER**  
**BIG IDEA: ELECTROMAGNETS**  
**TOPIC: CURRENT**

Key Word	Definition
<b>Negatively charged</b>	An object that has gained electrons as a result of the charging process.
<b>Positively charged</b>	An object that has lost electrons as a result of the charging process.
<b>Electrons</b>	Tiny particles which are part of atoms and carry a negative charge.
<b>Charged up</b>	When materials are rubbed together, electrons move from one surface to the other.
<b>Electrostatic force</b>	Non-contact force between two charged objects.
<b>Current</b>	Flow of electric charge, in amperes (A).
<b>In series</b>	If components in a circuit are on the same loop.
<b>In parallel</b>	If some components are on separate loops.

- Electricity is the presence or flow of charged particles.
- An electric current is the flow of electrons around a circuit.
- In metals the electrons are free to move, which means they are good conductors of electricity.
- If there is a complete circuit a battery can push electrons all around the circuit. This is an electric current.
- We use electric currents to control and operate devices, including phones, computers and light bulbs.

Some materials do not conduct electricity – they are insulators. Static electricity is the build up of electrons on an insulator.

Imagine rubbing a balloon on your jumper.

The balloon and jumper are each made of different insulating materials.

As you rub, electrons move from the jumper to the balloon, so negative charge builds up on the balloon.

If you touch the balloon, you may feel a shock as the charge travels through you to the ground.

Around a charged object, the electric field affects other charged objects, causing them to be attracted or repelled. The field strength decreases with distance.



Two similarly charged objects repel, two differently charged objects attract.

In a parallel circuit current divides at a branch, combines when branches meet, lights up bulbs and makes components work. See below

