

Pye Bank CE Primary DSAT Knowledge Organiser

YEAR 4

PHYSICS : Can we control electricity?

SCIENCE

KEY VOCABULARY

Battery: a device, containing one or more electrical cells, storing energy that can be converted into electrical power.

Circuit: the path around which an electric current circulates. An electric current will only travel around a closed, complete circuit.

Mains Electricity: electricity supplied directly from power stations to houses and other buildings.

Component: a part of a circuit that changes electrical energy into other forms such as light (bulb) or sound (a buzzer).

Conductor: a material that allows energy (heat or electricity) to pass through it easily.

Insulator: a material that does not allow electricity, heat or sound to pass through it easily. Rubber, plastic and wood are all insulators.

Electrical Energy: energy carried by electricity. Electrons carry electrical energy as they flow through a circuit.

Electron: a tiny particle found inside atoms that has a negative electrical charge. When electrons flow around a circuit, an electric current is created.

Series Circuit: a circuit in which electricity flows through each component in a single path.

Short Circuit: a circuit that contains no components. In a short circuit, there is very little resistance to the flow of electricity.

Terminal: the points of a battery that are connected to the circuit. These can have either a positive or negative charge.

Switch: a device for making and breaking the connection in an electrical circuit.

KEY SCIENTIST

Benjamin Franklin was born in 1706 and died in 1790 in the USA and is known for being one of the major players in the founding of the United States of America.



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STICKY KNOWLEDGE

1. Many of the items that we use every day run on electricity e.g. washing machines, lights, TVs and ovens.
2. Electricity can be supplied from the mains (these are plugged into power supplies) or from batteries.
3. A conductor is a material that allows charges to flow easily throughout the material. Metals are often good conductors. Examples include: silver, gold, copper, steel and salt water.
4. An insulator is a material that does not allow charges to flow easily throughout the material. Examples include: rubber, glass, oil, diamond and dry wood.
5. Water is an excellent conductor so it can be very dangerous to have electrical devices near water.

KEY CONCEPT

Main components of an electrical circuit



Battery



Wire



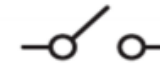
Bulb



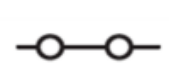
Buzzer



Motor



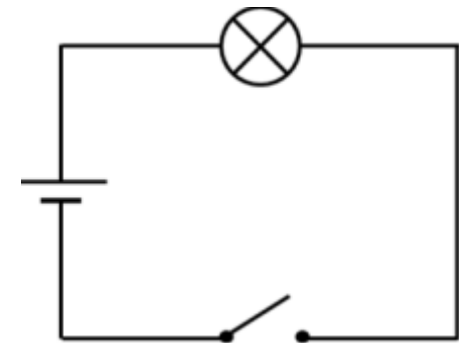
Switch (off)



Switch (on)

KEY CONCEPT

A scientific diagram of an open circuit:



The light bulb will not light in this circuit until the switch is closed.