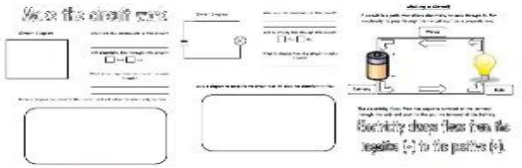
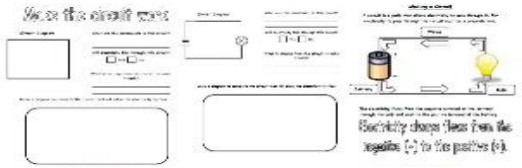


Switched On



What are the key physical facts that I need to know?

Scientific Fact 1	Scientific Fact 2	Scientific Fact 3	Scientific Fact 4	Scientific Fact 5	Scientific Fact 6
One flash of lightening could **power** 1000 houses for a whole year. ...	**Electricity** travels at the speed of light, which is more than 186,000 miles per hour.	In a **power** plant, **electricity** is made when steam from boiling water makes huge wheels spin in a turbine.	Electric current is measured in amperes (amps). Electric potential energy is measured in volts.	Two positive charges repel each other, as do two negative charges. Opposite charges, on the other hand attract each other.	Electric eels can produce strong electric shocks of around 500 volts for both self-defence and hunting.

Key Scientific Vocabulary - words that are related to the topic you are investigating and that must be used in your work

Word	Definition
bulb 	The glass part that fits into an electric lamp, etc. to give light when it is switched on.
circuit 	The complete path of wires and equipment along which an electric current flows.
component 	One of several parts that combine together to make a system, machine work.
conductor 	A substance that allows electricity or heat to pass along it or through it.
electron 	A very small piece of matter (= a substance) with a negative electric charge, found in all atoms.
electricity 	A form of energy from charged particles, supplied as electric current moving through cables, wires, etc. for lighting, heating, driving machines, etc.
insulator 	A material used to prevent heat or electricity from escaping.
switch	A small device that you press or move up and down in order to turn a light or piece

Sticky Knowledge- what we want you to know at the end of the unit
To know that our senses helps us explore the world around us.

To know that electricity is formed from the flow of electrons
- electrons are found in atoms along with protons and neutrons
- electricity is created when the electrons with a negative charge, move to the positive charge

To know how electricity is generated
- it is created by **generators** which can be powered by gas, coal, oil, wind or solar
- electrical energy can be converted into other types of energy such as light, heat, movement or sound
- electricity is **dangerous**, so be careful when using electrical appliances

To know how we can light a bulb
- electricity flows through all the components in a circuit
- a circuit has a power source, wires and other components such as bulbs or buzzers
- electricity only flows through a complete circuit
- electricity is created when the electrons with a negative charge, move to the positive charge

To know the function of an electrical switch
- a simple circuit consists of a battery
- the battery pushes electricity to the positive terminal
- an open switch breaks the circuit stopping electricity from moving around the circuit

To know what the different between electrical conductors and insulators
- **conductors:** are materials that let electricity pass through them easily; **metals,** such as **copper, iron and steel,** are good **electrical conductors**
- **insulators**: these materials do not allow electricity to pass through them; p**lastic, wood, glass** and **rubber** are good **electrical insulators**
- that is why they are used to cover materials that carry electricity

To know which types of metals are conductors

The scientific skills that you will be learning to use to answer the scientific questions

What is science?
Science is the exciting study of the nature and behaviour of natural things and the knowledge that we obtain about them. We ask questions that need answers. In order to answer these questions successfully, you will lean to use all these skills.

Grouping and classifying:
By using this type of enquiry, you will make observations and measurements to help you search for similarities and differences. This will help you to organise things into groups and make connections. In revisiting this type of enquiry regularly, you will become highly skilled in making and recording detailed observations.
How has electricity changed the way we live?

Exploring:
This is an ideal type of enquiry to encourage collaborative learning in children, both in the researching and sharing of information, but also in presenting their findings to a variety of audiences.
How does a light bulb work?

Using secondary sources of information:
You will learn to develop your research enquiries help to develop your scientific literacy, since children learn to compare and evaluate information from different sources.
As you learn to recognise the differences between fact and opinion, and consider the concept of bias, you will develop life skills that will support you in being citizens of the twenty-first century.
How has electricity changed the way we live?

	of electrical equipment on and off.	copper, silver, aluminium, gold, steel and brass are common **conductors** of **electricity** silver and gold are both effective, they are too expensive for common use	**Can you explain your answers?**