Willerby Carr Lane Primary School - Science

Topic: Electricity	Year: 4	Strand: Physics

What should I already know?
• Through play know which devices use electricity (battery and mains) and that the electricity provides the energy for the device to work. • Know some everyday devices which use electricity • Sources of light and sound may need electricity to work

What will I know by the end of the unit?	
What is electricity and where does electricity come from?	• Electricity is a form of energy. • Some appliances use batteries and some use mains electricity. • Batteries come in different sizes depending on how much and for how long the appliance is used. • Common appliances that use electricity.
How does a circuit work?	• A complete circuit is a loop that allows electrical current to flow through wires. • A circuit contains a battery (cell), wires and an appliance that requires electricity to work (such as a bulb, motor or buzzer). • The electrical current flows through the wires from the battery (cell) to the lamp, motor or buzzer). • A switch can break or reconnect a circuit. • A switch controls the flow of the electrical current around the circuit. When the switch is off, the current cannot flow. This is not the same as an incomplete circuit.
What are electrical conductors and insulators?	• When objects are placed in the circuits, they may or may not allow electricity to pass through. • Objects that are made from materials that allow electricity to pass through create a complete circuit are called electrical conductors. • Objects that are made from materials that do not allow electricity to pass through and do not complete a circuit are called electrical insulators

Vocabulary	
appliances	A device or machine in your home that you use to do a job such as cleaning or cooking appliances are often electrical
battery	Small devices that provide the power for electrical items such as torches
bulb	The glass part of an electric lamp, which gives out light when electricity passes through it
buzzer	An electrical device that is used to make a buzzing sound
cell	A synonym for battery circuit a complete route which an electric current can flow around
component	The parts that something is made of
conductor	A substance that heat or electricity can pass through or along
current	A flow of electricity through a wire or circuit
device	An object that has been invented for a particular purpose
electricity	A form of energy that can be carried by wires and in used for heating and lighting, and to provide power for devices
energy	The power from sources such as electricity that makes machines work or provides heat
fuel	A substance such as coal, oil, or petrol that is burned to provide heat or power
generate	Cause it to begin and develop
insulator	A non-conductor of electricity or heat
mains	Where the supply of water, electricity, or gas enters a building
motor	Motor a device that uses electricity or fuel to produce movement
power	Power is energy, especially electricity, that is obtained in large quantities from a fuel source and used to operate lights, heating, and machinery
source	Where something comes from
switch	A small control for an electrical device which you use to turn the device on or off
wires	A long thin piece of metal that is used to fasten things or to carry electric current

Investigate!
• Research how to work safely with electricity. • Make a variety of circuits, investigating which circuits work and why. • Create circuits using switches. • Investigate what happens if more batteries are added to a circuit. • Investigate which materials are electrical conductors and insulators

Common misconceptions
Some children may think: • electricity flows to bulbs, not through them • electricity flows out of both ends of a battery • electricity works by simply coming out of one end of a battery into the component.