

Year 4 – Electricity					
National Curriculum Objectives		Sticky Knowledge		Vocabulary	
<ul style="list-style-type: none"> Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes the circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors. Know the difference between a conductor and an insulator; giving examples of each. Safety when using electricity. 		<ul style="list-style-type: none"> A source of electricity (mains of battery) is needed for electrical devices to work. Electricity sources push electricity round a circuit. More batteries will push the electricity round the circuit faster. Devices work harder when more electricity goes through them. A complete circuit is needed for electricity to flow and devices to work. Some materials allow electricity to flow easily and these are called conductors. Materials that don't allow electricity to flow easily are called insulators. 		Electricity, electric current, appliances, mains, crocodile clips, wires, bulb, battery, cell, battery holder, motor, buzzer, switch, conductor, electrical insulator, component.	
				Key Scientists	Linked Texts
		Thomas Edison (First Working Lightbulb) Joseph Swan (Incandescent Light Bulb)		Until I Met Dudley (Roger McGough) Oscar and the Bird: A Book about Electricity (Geoff Waring) Electrical Wizard: How Nikola Tesla Lit Up the World (Elizabeth Rusch)	
Maths National Curriculum Objectives		Key Question(s):		Prior Learning	
<ul style="list-style-type: none"> Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and line graphs. 		<ul style="list-style-type: none"> What would life be like without electricity? What sorts of things use/need electricity? What electricity do I use? In which ways can we 'get' electricity? (mains/plugs/batteries/wireless) How do we make electricity? How do batteries work? How quickly can batteries run out? Does this make a difference depending on number of components? How does the number of batteries added to the circuit affect a device? What materials can carry electricity? (conductors/insulators) 		In Early Years children: <ul style="list-style-type: none"> May have some understanding that objects need electricity to work. May understand that a switch will turn something on or off. 	
Working Scientifically Objectives				Future Learning	
1.1 asking relevant questions and using different types of scientific enquiries to answer them 1.2 setting up simple practical enquiries, comparative and fair tests 1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers 1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions 1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions 1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions 1.8 identifying differences, similarities or changes related to simple scientific ideas and processes 1.9 using straightforward scientific evidence to answer questions or to support their findings.				In Year 6 children will: <ul style="list-style-type: none"> Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a simple circuit in a diagram.	
Teaching Ideas					
Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question – Assessment Opportunity
How does the thickness of a conducting material affect how bright the lamp is? Which metal is the best conductor of electricity?	How would you group these electrical devices based on where the electricity comes from?	How long does a battery light a torch for?	Which room has the most electrical sockets in a house?	How has electricity changed the way we live? How does a light bulb work?	What can we do with electricity?