Science Project Overview Year 6 Electricity

Subject Knowledge (PoS) Substantive Knowledge	Working Scientifically (PoS+Overview) Disciplinary Knowledge	Working Scientifically Methods
 The brightness of a lamp will increase with the number and voltage of cells used in the circuit. The volume of a buzzer will increase with the number and voltage of cells used in the circuit. Switches allow electricity to close or open a circuit and this affects the function of other components in the circuit. Recognised symbols are used when representing a simple circuit in a diagram. 	 During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: Asking their own questions about scientific phenomena recognising and controlling variables where necessary line graphs using test results to make predictions reporting and presenting findings from enquiries Draw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings 	Using different types of scientific enquiry to answer their own questions, including: • observing changes over different periods of time, • noticing patterns • grouping and classifying things
Previous learning:	Preparing for future learning:	Bespoke to our school:
 Identify common appliances that run on electricity. (Y4 - Electricity) Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Y4 - Electricity) 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 	 Electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge. (KS3) Potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current. (KS3) Differences in resistance between conducting and insulating components (quantitative). (KS3) Static electricity. (KS3) 	support children's understanding. Links to future world of work and climate change taught in Geography in Year 5.

battery. (Y4 - Electricity)				
 Recognise that a switch opens and closes a 				
circuit and associate this with whether or not				
a lamp lights in a simple series circuit. (Y4 -				
Electricity)				
 Recognise some common conductors and 				
insulators, and associate metals with being good				
conductors. (Y4 - Electricity)				
Vocabulary:				
Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage, components, symbols				
Misconceptions:				
 Larger-sized batteries make bulbs brighter 				
A complete circuit uses up electricity				
Components in a circuit that are closer to the battery get more electricity				
Maths links:				
Measurement: When solving problems that require the calculation and conversion of units of measures, use decimal notation up to three decimal places- using				
data logger to measure light (lux) levels or buzzer sound (Db) levels				
Statistics: Know how to construct a pie chart and line graph- creating graphs from results table				
Use pie charts and line graphs to solve problems- use results data to write/ discuss conclusions				
Understand the term mean as an average and be able to calculate it- calculate averages of readings from investigations				
Famous Scientists to possibly study:				
Thomas Edison- electric light bulb. Inventor of the fuse.				
Benjamin Franklin (1706-90). Showed that lightning is caused by electricity.				
Alessandro Volta (1745-1827). Invented the first battery. The volt, the unit of electromotive force, is named after him.				
History/Geography links: What is local business doing to help tackle climate change? Links to wind turbines				
Explorify links:				
Soak up some rays				
Super spinning wires				
Electrifying metals				
Possible careers/jobs:				
Renewable energy engineer (works on environmentally	-conscious energy production), Electrical engineer (works with equipment that	t uses electricity), Electrician		
(installs and maintains electrical equipment), Physicist (studies physics)				