St James' Church of England Primary School
Key Learning in Science – Electricity

Key Learning: Electricity		
Key Learning	**Notes and guidance (Non-statutory)**	**Working Scientifically (Featured skills)**
KS1 - Not statutory within NC2014 Pupils should be taught to: **LKS2: Year 4 – Electricity** ▪ 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 a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery. ▪ Recognise that a switch opens and closes a 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. The following statutory requirement is in the NC2014 for year 5 'Properties and Changes of Materials' but can be taught here. Ensure all teachers are aware when this key learning will be taught. ▪ Compare materials in order to make a switch in a circuit. ▫ Electricity can be dangerous. ▫ Electricity sources can be mains or battery. ▫ Batteries 'push' electricity round a circuit and can make bulbs, buzzers and motors work. ▫ Faults in circuits can be found by methodically testing connections.	**KS1 -** N/A **LKS2: Year 4 – Electricity** *Pupils should construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced in Year 6.* ***Note:** Pupils might use the terms current and voltage, but these should not be introduced or defined formally at this stage. Pupils should be taught about precautions for working safely with electricity.*	**KS1 -** N/A Pupils might work scientifically by: **LKS2: Year 4 – Electricity** • *Observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.*

▫ Drawings, photographs and diagrams can be used to represent circuits (although standard symbols need not be introduced until UKS2).		
UKS2: Year 6 – Electricity ▪ 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. ▫ Circuit diagrams can be used to construct a variety of more complex circuits predicting whether they will 'work'. (Background information for teachers: The effect of changing components in a circuit can be linked to the amount of push from the batteries or the ease of flow of the electricity through devices (motors/bulbs/wires) e.g. a bulb might dim when more bulbs are added).	**UKS2 : Year 6 – Electricity** *Building on their work in Year 4, pupils should construct simple series circuits, to help them answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. They should learn how to represent a simple circuit in a diagram using recognised symbols.* ***Note:** Pupils are expected to learn only about series circuits, not parallel circuits. Pupils should be taught to take the necessary precautions for working safely with electricity.*	**UKS2: Year 6 – Electricity** • *Systematically identifying the effect of changing one [thing] component at a time in a circuit.* • *Designing and making a set of traffic lights, a burglar alarm or some other useful circuit.*