## **Ashwell Primary School**

**Science Curriculum** 

## **Electricity Knowledge Organiser**



EYFS					
Core Knowledge / skills to be acquired:		Key Vocabulary:			
know electricity can be dangerous		Battery, electricity, switch			
<ul> <li>explore a range of battery powered devices</li> </ul>					
Curriculum Enrichment / Cultural Capital Op	portunities				
•					
Prior knowledge / skills this builds on:	or knowledge / skills this builds on: What comes next: (Year 4 – Circuits and components)				
	<ul> <li>identify common appliances that run on electronic</li> </ul>	ctricity			
	<ul> <li>identify mains operated and battery operated determined and battery operated and battery operated determined and battery operated and battery operate</li></ul>	evices			
	describe some of the dangers associated with mains electricity				
	<ul> <li>name some components of a simple electrical circuit</li> </ul>				
	<ul> <li>know that batteries are sources of electricity</li> </ul>				
	<ul> <li>recognise that for a circuit to work it must be complete</li> </ul>				
	<ul> <li>construct a working circuit</li> </ul>				
	<ul> <li>construct a simple series electrical circuit, in</li> </ul>	dentifying and naming its basic parts, including cells, wires,			
	bulbs, switches and buzzers				
	<ul> <li>make drawings of simple working circuits (picto</li> </ul>	rial only circuit symbols covered in year 6)			
	<ul> <li>make circuits from drawings provided</li> </ul>				
	Identify whether or not a lamp will light in a set of a complete loop with a better.	simple series circuit, based on whether or not the lamp is part			
	of a complete loop with a battery				
	<ul> <li>are methodical in tracing lauts in simple circuits</li> <li>describe the effect of making and breaking are</li> </ul>	S of the contacts on a size wit			
	<ul> <li>describe the effect of making and breaking one</li> <li>evolution why some circuits work and others do n</li> </ul>	of the contacts on a circuit			
<ul> <li>explain why some circuits work and ciners do not</li> <li>recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in</li> </ul>					
- recognise that a switch opens and closes a circuit and associate this with whether of hot a famp lights in					
	<ul> <li>describe how switches work</li> </ul>				
	<ul> <li>construct a home-made switch</li> </ul>				
	<ul> <li>identify materials as conductors or insulators</li> </ul>				
	<ul> <li>construct simple circuits and use them to test w</li> </ul>	hether materials are electrical conductors or insulators			
	<ul> <li>recognise some common conductors and in</li> </ul>	sulators, and associate metals with being good conductors			
	<ul> <li>relate knowledge about metals and non-metals</li> </ul>	to their use in electrical appliances			
	<ul> <li>describe the use of conductors and insulators in</li> </ul>	n components including connecting wires			
	<ul> <li>identify playdough and graphite as non-metal c</li> </ul>	onductors and explain why this is unusual			

	Year 4 – Circuits and components	
Core Knowledge / skills to be acquired: identify common appliances that run on electricit identify mains operated and battery operated devices describe some of the dangers associated with mains name some components of a simple electrical circuit know that batteries are sources of electricity recognise that for a circuit to work it must be complet construct a working circuit switches and buzzers	y electricity fying and naming its basic parts, including cells, wires, bulbs,	Key Vocabulary: Battery, cell, wires, switch, crocodile clips, buzzer, bulb, circuit, symbols, insulator, conductor, plastic, metal, appliance, component
make drawings of simple working circuits (pictorial on make circuits from drawings provided identify whether or not a lamp will light in a simpl complete loop with a battery are methodical in tracing faults in simple circuits describe the effect of making and breaking one of the explain why some circuits work and others do not recognise that a switch opens and closes a circui series circuit describe how switches work construct a home-made switch identify materials as conductors or insulators construct simple circuits and use them to test whethe recognise some common conductors and insulat relate knowledge about metals and non-metals to the describe the use of conductors and insulators in com	Ity circuit symbols covered in year 6) e series circuit, based on whether or not the lamp is part of a e contacts on a circuit it and associate this with whether or not a lamp lights in a simple er materials are electrical conductors or insulators ors, and associate metals with being good conductors eir use in electrical appliances apponents including connecting wires ponents including connecting wires	
Curriculum Enrichment / Cultural Capital Opport	tunities	
<ul> <li>know electricity can be dangerous</li> <li>explore a range of battery powered devices</li> </ul>	<ul> <li>wnat comes next: (Year 6 - Electricity</li> <li>know that the 'amount' of electricity (voltage) depends on the numb construct some working series circuits with specified components</li> <li>recognise conventional circuit symbols</li> <li>use recognised symbols when representing a simple circuit in</li> <li>draw circuit diagrams and construct circuits from diagrams using consecutive explore how to change the brightness of bulbs and the volume of a</li> <li>describe ways of changing the brightness of a bulb in a circuit or the compare different circuits (e.g. for brightness of bulb)</li> <li>recall that the amount of electricity is measured in voltage</li> </ul>	per of batteries <b>a diagram</b> prventional symbols buzzer le volume of a buzzer

<ul> <li>associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</li> <li>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</li> <li>explore the thickness of a wire in a circuit</li> <li>describe the differences between wires usually used for circuits and fuse wires</li> <li>describe what would happen if all the lights in a home were connected in the same circuit and one broke</li> </ul>
<ul> <li>describe what would happen if all the lights in a nome were connected in the same circuit and one broke</li> <li>explain the current in circuits using simple models and analogies (e.g. piped water, bicycle chain, children and sweets)</li> </ul>

Year 6 - Electricity		
re Knowledge / skills to be acquired:	Key Vocabulary:	
know that the 'amount' of electricity (voltage) depends on the number of batteries		
construct some working series circuits with specified components	Voltage, current, series,	
recognise conventional circuit symbols	component, circuit, conductor,	
use recognised symbols when representing a simple circuit in a diagram	complete circuit battery cell	
draw circuit diagrams and construct circuits from diagrams using conventional symbols	complete circuit, battery, cen	
explore how to change the brightness of bulbs and the volume of a buzzer		
describe ways of changing the brightness of a bulb in a circuit or the volume of a buzzer		
<ul> <li>compare different circuits (e.g. for brightness of bulb)</li> </ul>		
recall that the amount of electricity is measured in voltage		
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 now components function, including the brightness of builds, the		
ovalors to thickness of a wire in a circuit		
describe the differences between wires usually used for circuits and fuse wires		
describe what would happen if all the lights in a home were connected in the same circuit and one broke		
explain the current in circuits using simple models and analogies (e.g. piped water, bicycle chain, children and sweets)		
rriculum Enrichment / Cultural Capital Opportunities		
mediam Emeriment / Outural Opportanties		
or knowledge / skills this builds on: (Vear 1 - Circuits and Components)	What comes poyt:	
identify common appliances that run on electricity.	What comes next.	
identify mains operated and battery operated devices		
describe some of the dangers associated with mains electricity		
name some components of a simple electrical circuit		
know that batteries are sources of electricity		
recognise that for a circuit to work it must be complete		
construct a working circuit		
construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs,		
switches and buzzers		
	re Knowledge / skills to be acquired: know that the 'amount' of electricity (voltage) depends on the number of batteries construct some working series circuits with specified components recognise conventional circuit symbols use recognised symbols when representing a simple circuit in a diagram draw circuit diagrams and construct circuits from diagrams using conventional symbols explore how to change the brightness of abulb in a circuit of the volume of a buzzer compare different circuits (e.g. for brightness of abulb in a circuit or the volume of a buzzer compare different circuits (e.g. for brightness of a bulb) recall that the amount of electricity is measured in voltage 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 explore the thickness of a lamp or the volume of a circuit describe what would happen if all the lights in a home were connected in the same circuit and one broke explain the current in circuits using simple models and analogies (e.g. piped water, bicycle chain, children and sweets) rriculum Enrichment / Cultural Capital Opportunities or knowledge / skills this builds on: (Year 4 – Circuits and Components) identify nains operated and battery operated devices describe some of the dangers associated with mains electricity name some components of a simple electrical circuit know that batteries are souces of electrical y recognise that for a circuit to work it must be complete construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	

ſ	make drawings of simple working circuits (pictorial only circuit symbols covered in year 6)
	make circuits from drawings provided
	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
	are methodical in tracing faults in simple circuits
	describe the effect of making and breaking one of the contacts on a circuit
	explain why some circuits work and others do not
	recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple
	series circuit
	describe how switches work
	construct a home-made switch
	identify materials as conductors or insulators
	construct simple circuits and use them to test whether materials are electrical conductors or insulators
	recognise some common conductors and insulators, and associate metals with being good conductors
	relate knowledge about metals and non-metals to their use in electrical appliances
	describe the use of conductors and insulators in components including connecting wires
	identify playdough and graphite as non-metal conductors and explain why this is unusual.