Science Skills Progression
To understand electrical circuits

Essential characteristics of scientists	•The ability to think independently and raise questions about working scientifically and the knowledge and skills that it brings. •Confidence and competence in the full range of practical skills, taking the initiative in, for example, planning and carrying out scientific investigations. •Excellent scientific knowledge and understanding which is demonstrated in written and verbal explanations, solving challenging problems and reporting scientific findings. •High levels of originality, imagination or innovation in the application of skills. •The ability to undertake practical work in a variety of contexts, including fieldwork. •A passion for science and its application in past, present and future technologies.	
	Key Knowledge	**Key Vocabulary**
EYFS	Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.	
Y3/4	**Y4 learning challenge - How would we cope without electricity for one day?** **Science Bug - Y4 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 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 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.	• generator • component • circuit • current • connected • switch • conductor • insulator
Y5/6	**Y6 learning challenge - Could you be the next Nintendo (or Xbox) apprentice?** **Science Bug - Y6 Changing circuits** • Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the	• generator • component • voltage • electrical symbols

	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.	
KS3	• Electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge. • Potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current. • Differences in resistance between conducting and insulating components (quantitative). • Static electricity.	