Science – Year 4

Summer 2	Electricity					
Prior learning	EYFS – learn about ears and explain how ears work, explore how to make sound, explore the sense of hearing					
Lesson objective	Explore electrical appliances and electrical safety	Learn about Electrical components in a series circuit	Investigate electrical circuits	Explore conductors and insulators	Learn about electrical switches	Apply knowledge of conductors and insulators
Key vocabulary	electricity batteries mains electricity appliance plug socket	circuit series circuit component cell battery	incomplete circuit complete circuit battery wire bulb	electrical conductor electrical insulator metal copper plastic	switch complete circuit control electrical conductor incomplete circuit	non-renewable energy renewable energy wind turbines solar panels hydropower
Creative context						
Substantive knowledge	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 some common conductors and insulators, and associate metals with being good conductors	Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit	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 some common conductors and insulators, and associate metals with being good conductors
Disciplinary knowledge	Reporting on findings from enquiries, including oral and written explanations,	Using straightforward scientific evidence to answer questions or to	Reporting on findings from enquiries, including oral and written explanations,	Gathering, recording, classifying and presenting data	Setting up simple practical enquiries, comparative and fair tests	Using straightforward scientific evidence to answer questions or to

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	displays or presentations of results and conclusions	support their findings	displays or presentations of results and conclusions	in a variety of ways to help in answering questions	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	support their findings
Recorded learning	Create a poster that shows the dangers of electricity and how to stay safe. Challenge Task: Write down 5 electrical safety rules which will keep them safe in the kitchen.	Make circuits with each of the following components: a bulb, a buzzer/bell and a switch. Match each component to its picture and description. Discuss what they notice happens when they open and close the switch in a complete circuit. Challenge Task: Construct and draw a picture of a simple circuit that might be used in	Look at the pictures of five different circuits and predict if the component will light up or buzz, then state their reasons why. Create the circuit shown in the diagram, record the results and explain why the component did or did not work and if their results are different to their predictions. Challenge Task: Using the handout, draw two circuits; one that will work and one that won't work. Ask them to explain why the	Use simple electrical apparatus to investigate which materials are electrical conductors and which are insulators. Predict which materials and objects will act as an electrical conductor and which will act as an electrical insulator. Record results on the table and transfer their results onto a Venn diagram. Which objects did they discover were made	Task 1: Look at four different circuit diagrams. Predict and then observe whether the switch will enable the bulb to light when placed in different positions in the circuit. Task 2: Create a switch. Allow them to explore the different materials. Ask them to record what they have chosen and why. Draw their switch and label what they have made it from.	Create a loop and wire game. Use a buzzer or a bulb in the circuit to show when someone has 'failed' the game. Draw and label a picture of their game and identify materials chosen as conductors and insulators for different components in the game. They should test their game to ensure the components work when the loop and wire touch.

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		the electrical appliances in the pictures.	circuits will or will not work.	of both insulating materials and conducting materials? Write up a conclusion that answers the following questions: What materials make good conductors? What makes a good insulator? Use the slides after the mission assignment to support this.	Write instructions on how to make their switch.	
Future learning	Year 6 Electricity topic					