Science Unit Planner Year: 6 Title: Electricity - Circuits

Unit Overview	Pupils look at electricity and what circuits are used for. When looking at circuits, Pupils will learn that the power needed to control the brightness of a lamp or volume of a buzzer is dependent on the voltage in a circuit. Pupils will compare and give reasons for variations in how components function and they will be able to use recognised symbols when representing a simple circuit diagram.	
Prior Learning/ Links	Link to year 3 DT fairground unit where basic circuits are used. Links to Year 4 Circuits where pupils identify appliances that work using electricity. Year 4 pupils construct a simple circuit using the correct terminology for basic parts: cells, buzzer, wire, bulb, switches. They identify circuits that are not complete and explain why the electricity cannot flow and group materials into electrical conductors and insulators, linking to electricity safety.	
Unit Title:	**Substantive Knowledge**	**Disciplinary Knowledge**
Key Questions: What is electricity? What is a circuit? What would different circuits look like? What will happen when we switch on this circuit? Is this circuit correct/complete? What would happen if we open/closed the switch? How does the thickness of wire effects the brightness of a bulb?	• Know that Electricity is power which can be generated by different sources: coal, oil, gas, wind, solar, wave. • That a circuit must be complete to wor – this means has a poeer source and no breaks in the circuit. • Children know the names and symbols for the components: bulb, bettery, wire, switch, motor, buzzer. • Children know that if there is any break in the circuit it is not complete, and therefore will not work. • Children can identify where a circuit break is and talk about what the resolution would be. • Children can explain what makes a bulb brighter – including shorter wires and more power. • Children can describe how switches work in a circuit and relate this to switches at home/ school. • Children can investigate ways of setting up circuits for a purpose eg, a burglar alarm that activates when a switch is broke,	**<u>Questioning and Planning</u>** • Plan different types of enquiries, exploring what may work well and why. • To plan tests involving the control of variables – stating why this is important in conducting a fair test. • Make predictions **<u>Observation and Measurement</u>** • To plan tests involving the control of variables – stating why this is important in conducting a fair test (how to make bulbs brighter, how to make buzzers louder) • Take accurate measurements and observations, repeating readings in order to achieve accuracy. **<u>Recording and Presenting</u>** • Report and present findings to others: - Use written explanations - Draw and present diagrams and explain their meaning - Discuss the degree of trust in results. **<u>Analysing and Evaluating</u>** • Evaluate how different circuits will work and give reasons for differences: - Why 2 bulbs will be dimmer than one, how the volume of a buzzer can be changed depending on voltage. - How a switch works and relate to real – life situations.

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How can we make bulbs brighter/buzzers louder? What would happen if we added more batteries?		
Vocabulary	**Trips/ Visits/Useful Websites/ Resources**	**Key Misconceptions:**
Substantive: Voltage Generator Cell Current Conductor Insulator Circuit Component **Disciplinary:** Control Repeat/reliability Support/refute	What is power? - BBC Bitesize What is electricity? - BBC Bitesize How do you draw electrical symbols and diagrams? - BBC Bitesize How can you change a circuit? - BBC Bitesize What are conductors and insulators? - BBC Bitesize	• Electricity is only generated one way. • All circuits will work • Adding more bulbs will make them brighter