

Year Group	Year 6
Term	Spring 1
Subject	Science

Topic	Electricity
Curriculum Intent	Children will understand how the voltage of a cell affects the components in a circuit. Children will investigate what affects the components in a circuit and be able to draw circuit diagrams.

Key Vocabulary	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage
-----------------------	---

skills	<ul style="list-style-type: none"> • Use their science experiences to explore ideas and raise different kinds of questions. • Select and plan the most appropriate type of scientific enquiry to use to answer scientific questions. • Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. Take repeat measurements where appropriate. • Make their own decisions about what observations to make, what measurements to use and how long to make them for. • Decide how to record data and results of increasing complexity from a choice of familiar approaches: scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas.
---------------	---

Knowledge	<ul style="list-style-type: none"> • 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.
------------------	--

Wk	Learning Objective	Activities	Outcome
1	To establish prior knowledge of electricity.	<p>Children create mind maps about electricity in small groups. What do we remember Children given electrical circuit symbols sheet to stick in. Do they understand what each component is and what it is used for? Discuss in groups and feedback to class. In small groups, children to create and draw (using ruler and sharp pencil) the following simple circuits.</p> <ul style="list-style-type: none"> • A circuit with one bulb (lighting lamp) and a switch. • A circuit with a bulb, a motor and a switch • A circuit with a buzzer and two bulbs. 	Children will create an electrical circuit – naming the parts and using correct symbols when drawing circuits.
2	I can observe and explain the effects of differing voltages in a circuit.	<p>Show children a range of differing voltage batteries. Draw circuit diagram with the volts labelled. Discuss the location of the label and how to label a battery containing multiple cells, as opposed to a single cell.</p> <p>Make predictions together about what will happen to a bulb, motor or buzzer depending on the voltage of the cell or battery. Discuss what difference they would expect (e.g. bulb will get brighter, it will increase in brightness, the brightness will stay the same). Model one example using a bulb, including how to draw the circuit diagram of each step with volts labelled accurately.</p>	Children will observe and be able to explain the effects of differing voltages in a circuit.
3	LO: To plan an investigation including which variables to measure and control.	Children write their investigation question and discuss how they are going to answer it. Chn will need to draw any circuits. How can we ensure that this experiment is a fair test? Chn will need to ensure they are only changing one variable, the independent variable i.e. the number of light bulbs. Everything else needs to stay the same – the control variables. The dependent variable is the one that is measured.	Children will plan an investigation including which variables to control, measure, change. Children will understand what a fair and comparative test is.
4	LO: I can use my plan to conduct an investigation.	Define what degrees of trust are. Discuss the different criteria. Which of these should you bear in mind while conducting your investigation? What will you do to ensure you can have a high degree of trust in your results?	Children conduct an investigation and choose how to record their data and report their findings.
5	Use electrical knowledge to design and build a simple burglar alarm.	: 'How to build a burglar alarm.' This is just one idea and children can adapt this. Do they think this is the most efficient way to make a burglar alarm or do they have better ideas? They will need to create a pressure pad and use wires, a buzzer and a battery. Think about insulation and ensuring the design is safe. In small groups, children look at the information and then design their burglar alarm, including a diagram, materials list and written instructions.	Children will design and make their own burglar alarm, ensuring it is safe.