

Brough Primary School – Curriculum Intention Plan 2023 - 2024



Subject: Science Year Group: Year 3/4		Area of learning: Electricity (Year B)
Links to previous work/Remember when	<ul style="list-style-type: none"> Children will already know quite a bit about appliances that run on electricity and they will probably know something about precautions that should be taken when using electronic devices. <p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> asking simple questions and recognising that they can be answered in different ways observing closely, using simple equipment performing simple tests identifying and classifying using their observations and ideas to suggest answers to questions gathering and recording data to help in answering questions. 	
	Year 3/4	Key Skills to be taught
Spring 2 2024 What the children should know at the end of this series of lessons	<ul style="list-style-type: none"> 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. <p><u>Working Scientifically</u></p> <ul style="list-style-type: none"> asking relevant questions and using different types of scientific enquiries to answer them setting up simple practical enquiries, comparative and fair tests gathering, recording, classifying and presenting data in a variety of ways to help in answering questions recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions identifying differences, similarities or changes related to simple scientific ideas and processes using straightforward scientific evidence to answer questions or to support their findings. 	

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Vocabulary

Electricity, electrical appliance, mains power, battery power, electrical charge, power station, pylons, overhead cables, component, circuit, flow of electricity, motor, switch, buzzer, wire, crocodile clip, battery, bulb, bulb holder, complete circuit/ incomplete circuit, current, component, switch, push switch, selector switch.

Sequence of learning	Learning Objectives/Outcomes	Suggested lesson outline
1 21/2/24 JH	<p>Learning Objective: I can identify common appliances that use electricity.</p> <p>Key Knowledge: Some electrical appliances run on 'mains power' which is generated and sent into your home through overhead wires and pylons and then wires in your walls and to the socket. (Danger). Smaller appliances are battery powered. Electricity flows from a battery if the circuit is complete powering devices. Some batteries are rechargeable, some are not.</p> <p>Enquiry Type: Ask simple questions and recognising that they can be answered in different ways.</p>	<p>Recap – Who likes to do these things in your spare time – watch TV, play games on an E Box, go on an iPad, use a laptop? What makes them all work? What other appliances do we know that work on electricity?</p> <p>Appliances that use electricity in the home This is the first lesson in this topic and children will not have learnt specifically about electricity in science before. Show that electricity is generated and then sent to our homes through pylons and wires. Discuss danger of electricity. Move on to discuss batteries. Some are rechargeable some are not. Identify batter powered and mains powered appliances and devices.</p> <p><i>Children cut out pictures of different appliances that you might find around the home. They then put them in the correct place on the diagram to indicate battery or mains power.</i></p>
2	<p>Learning Objective: I can construct a simple circuit and name the parts of the circuit.</p> <p>Key Knowledge: Parts of a circuit are called components. When one component is connected to a power source it is called a</p>	<p>Recap – Name two appliances in the home that are powered by electricity. Are they mains or battery? What is the difference between the two?</p> <p>Simple circuits In this lesson the children will learn what a circuit is and how to make a simple circuit. (They do not need to know about parallel circuits in KS2). They work out through trial and error how to get a bulb</p>

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	<p>circuit. When the circuit is complete, electricity (called current) flows around it.</p> <p>Enquiry Type: Observing closely, using simple equipment. Performing simple tests.</p>	<p>to light up in a simple circuit and then experiment with buzzers and motors too.</p> <p><i>Children record labelled diagrams (not circuit diagrams) of the different circuits they make. (Buzzer, motor, bulb and buzzer, 2 bulbs. They could go and solve the challenge of which circuit would make the bulbs brighter – 1 battery or two?</i></p>
3	<p>Learning Objective: I can identify if a bulb will light up in a circuit.</p> <p>Key Knowledge: When a circuit works it is called a complete circuit. When it doesn't work it is called an incomplete circuit. An incomplete circuit may have faulty or broken equipment or it may not be constructed correctly.</p> <p>Enquiry Type: Observing closely, using simple equipment. Performing simple tests.</p>	<p>Recap – Show pictures of the components the children met last week. Can they name any of them?</p> <p>Complete and incomplete circuits In this lesson the children will learn to spot what might be wrong when a circuit is incomplete. This should include construction errors and faulty equipment if possible.</p> <p><i>Children study pictures of different circuits and identify and recording the problem with them, before moving on to make two of their own. They should photograph them using the iPads and then get other children in the room to say what is wrong. Record definitions for complete and incomplete.</i></p>
4	<p>Learning Objective: I can recognise common conductors and insulators and associate metals with being good conductors.</p> <p>Key Knowledge: Electricity cannot travel through some materials – they are called insulators. Electricity can travel through other materials – they are called conductors.</p> <p>Enquiry Type: Observing closely, using simple equipment. Performing simple tests.</p>	<p>Recap – Which of these circuits is complete? Why? In our last lesson we learnt there can be more than one reason why a circuit may be incomplete. What can you remember?</p> <p>Conductors and insulators In this lesson the children will learn why we don't get electrocuted when we touch a wire. Look at examples of wire and show that the cover is plastic – plastic is an insulator of electricity. Children set up a simple circuit and then go on to test a range of materials from the classroom (wood, tin foil, steel spoon, can, plastic, tin, fabric).</p> <p><i>Children an investigation of a given range of materials to see which are</i></p>

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		conductors and which are insulators. They should record their results and list which are conductors and which are insulators. Challenge – how could we investigate if all metals are conductors?
5	<p>Learning Objective: I can investigate different switches and how they open and close a circuit.</p> <p>Key Knowledge: A closed switch completes the circuit so electrical current can flow. An open switch makes the circuit incomplete so electricity cannot flow.</p> <p>Enquiry Type: Observing closely, using simple equipment. Performing simple tests.</p>	<p>Recap – Check the children's understanding of components. Can they name them? Which ones have they forgotten? Why do you think we use switches in appliances and devices?</p> <p>Open and closed switches In this lesson the children will consider the need for switches and how they work completing the circuit when closed. They will design their own switches using the materials they have been given. Some children will need a switch that stays on and some will need a switch which has to be held down.</p> <p><i>Children draw a labelled diagram of their switch and write a brief explanation of how it works, stating if it meets the design brief or not.</i></p>
6	<p>Learning Objective: To demonstrate what has been learnt about electricity.</p>	<p>ASSESSMENT LESSON</p> <p>Children complete short formative assessment.</p>

Learning Outcome/product

Children will be able to state the names of some appliances that run on electricity; they will know what a circuit is and the names of some components for circuits. They will understand which materials are conductors and insulators and be able to complete a circuit using a switch.

Assessment records	List only those children who have not achieved the expected outcomes.