Samuel Allsopp
Primary & Nursery School

MEDIUM TERM PLAN

TERM: Autumn 2		YEAR GROUP: Year 4		SUBJECT: Science- Electricity and circuits	
WEEK 1 **DATE: 04.11.24** **L1: Using Electricity**	**WEEK 2** **DATE: 11.11.24** **L2: Building circuits**	**WEEK 3** **DATE: 18.11.24** **L3: Switching on and off**	**WEEK 4** **DATE: 25.11.24** **L4: Investigating electrical conductors and insulators**	**WEEK 5** **DATE: 02.12.24** **L5: Investigating bulb brightness**	**WEEK 6** **DATE: 09.12.24** **L6: Electrical safety**
LO: To recognise how electrical appliances are powered. Working scientifically: To record and classify qualitative data. **Success Criteria:** I can identify if something is an electrical appliance or not. I can classify an electrical appliance as mains or battery-powered. Working scientifically: I can record results under the correct headings in a table. Working scientifically: I can group electrical appliances based on their power supply. **Main Event:** Children in pairs to complete to activity: Advantages and disadvantages of mains and batteries (pre-cut, one set of cards per pair). Ask the children to sort the cards into two piles: statements relating to mains power and statements about battery power. **Support:** Could use the Activity: Grouping appliances (support) to cut and stick school-based appliances into the correct columns. **Challenge:** Should rank the statements from the Activity: Advantages and disadvantages of mains and batteries based on the strength of the argument for or against its power supply and justify opinions; could evaluate the class model of an electrical circuit, considering strengths and limitations; could choose their own example of an appliance in the Wrapping up and explain why that power supply is suitable as either battery or mains-powered.	**LO:** To construct an electrical circuit. Working scientifically: To draw a scientific diagram. **Success Criteria**: I can identify components in a circuit. I can build a circuit using a battery and a bulb. I can explain how to test if a circuit works or not. Working scientifically: I can draw symbols for the electrical components. Working scientifically: I can draw a circuit diagram. **Main Event:** Children to access resource: circuits to test and a circuit kit (one between two) and the Activity: Testing circuits (one each). Children to choose one of the cards from the Resource: Circuits to test. In their pair, predict whether the circuit will work and record their ideas in the table on the Activity: Testing circuits. **Support:** Could use the Activity: Circuit symbol cut and stick (support) to reduce the amount of writing in the lesson. **Challenge:** Should try to explain the benefits of using set, scientific symbols; should explain why each circuit will or will not work.	**LO:** To explain the use of switches in a circuit. **Success Criteria:** I can identify the symbol for a switch. I can predict whether a circuit will work by observing whether the switch is open or closed. I can explain how a switch works. I can explain why switches are useful. **Main Event:** Children to access resource: Making a buzz wire game (one between two) and the buzz wire kits (one between two). Allow the children to create their buzz wire games as a pair. Children to make and test the games and answer the questions in their books. **Support:** Could use pre-prepared components to connect together when building the buzz wire game; could use a completed example to follow when building the buzz wire game. **Challenge:** Should attempt to independently predict how to draw a circuit diagram for their buzz wire game; could invent their own game that uses an electrical circuit with a switch.	**LO:** To explain the use of materials as electrical conductors or insulators. **Working scientifically:** To write a method. **Success Criteria:** I can describe how to test whether a material is a good electrical conductor or insulator. I can recall which groups of materials are good electrical conductors or insulators. **Working scientifically:** I can write a safe method in chronological order, using clear instructions and appropriate equipment. **Main Event:** Children to write a method (set of instructions) for making buttered toast and jam. In pairs children complete activity: Investigating electrical conductors and insulators (one each). Allow each pair to collect the equipment needed to test the electrical conductivity of different materials. Children to summarise what they have learned about the electrical conductivity of types of materials in the conclusion section of the sheet. **Support:** Use activity: Investigating electrical conductors and insulators (support version) to provide prompts when writing the method; should watch the Pupil video: Investigating electrical conductors and insulators to reinforce the method and offer reminders throughout the experiment. **Challenge:** Should make predictions about other objects and materials that have not been tested based on their results (and therefore extrapolating data); could replace the bulb in the test circuit with an ammeter and record the conductivity for the different materials; could list the materials tested in order of conductivity.	**LO:** To investigate what affects bulb brightness. Working scientifically**:** To pose questions and plan ways to test them. **Success Criteria:** I can describe how the number of bulbs in a series circuit affects bulb brightness. I can explain why bulb brightness is affected by the number of bulbs. Working scientifically: I can pose a question about bulbs in an electrical circuit. Working scientifically: I can suggest ways of answering a question. Working scientifically: I can explain why a question is testable. **Main Event**: Activity: Investigating bulb brightness (one each) and the Resource: Investigating bulb brightness method (one between two). Ask the pupils to write the question they will test at the top of the activity sheet. Children to discuss or write answers to the questions in the conclusion section of the sheet to summarise what they have learned about the effect of adding bulbs to the circuit. **Support:** Could use the Activity: Investigating bulb brightness: support to provide prompts when writing the enquiry question and forming a conclusion; should watch the Pupil video: Investigating bulb brightness to reinforce the method and offer reminders throughout the experiment as it is set to play on a loop. **Challenge:** Should make predictions about different numbers of bulbs in a series circuit and the subsequent bulb brightness (therefore extrapolating data); could use an	**LO**. To explain how to be safe around electricity. Science in action: To explore how scientific advances inform safety advice. **Success Criteria:** I can describe precautions for working safely with electricity. I can use scientific knowledge to explain why safety rules are in place. Science in action: I can recall that inventing new materials or appliances may change safety advice. **Main Event:** Children to produce an advice sheet telling people how to be safe around electricity using their knowledge from the unit. Display the Presentation: Electrical safety sheet and use the points system to explain key features of an effective advice sheet. Children to complete to get the most points. **Support:** Use activity: Electrical safety advice (support) as a prompt sheet to help summarise what they have learnt about electrical safety throughout the unit; could cut and stick elements of the Activity: Electrical safety advice as part of their own advice sheet. **Challenge:** Should rank multiple pieces of safety advice in order of importance, justifying why one might be more important than another.

Samuel Allsopp
Primary & Nursery School

MEDIUM TERM PLAN

				ammeter within the series circuit to collect quantitative data to support the relationship described; could use a device to access the link: PHET Circuit Construction Kit to simulate the addition of an ammeter into the circuit to collect quantitative data to support the relationship described.	