Mayflower FEDERATION

Science

Year 4

Autumn 1

Electricity

Year 4
Science
Electricity

National Curriculum

- I can talk about common appliances that run on electricity
- I can construct and draw with labels a simple series electrical circuit which includes cells, wires, bulbs, switches and buzzers
- I can predict if a lamp will light or not in a simple series circuit, based on whether or not the lamp is part of a complete look with a battery
- I can explain that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- I can show that some materials are conductors and some are insulators, and can explain that metals are good conductors

Key objectives to cover

- Pupils to construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices.
- Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage (these will be introduced in year 6)
- Pupils might work scientifically by: observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.

National Curriculum – Working scientifically

- I can ask relevant questions and use different types of scientific enquires to answer them
- I can set up practical enquires, comparative and fair test. (Fair testing with support)
- I understand that if we want to know if one thing affects another, then THAT is the only thing we must change, or we won't know what caused that effect.
- I can report on findings from enquiries, including spoken and written explanations, displays or presentations of results and conclusions.
- I am beginning to organise results and present them in different ways.
- I can make systematic and careful observations and take accurate measure using standard units, using a range of equipment, including thermometers and data loggers
- I can gather, record, classify and present data in a variety of ways to help in answering questions
- I can record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- With support, I can begin to use key scientific ideas to explain what I can see.
- I can use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- I can identify differences and similarities or changes related to scientific idea and processes
- I can use scientific evidence to answer question or to support my findings

Six Areas

Areas to be covered in this module

Research
Comparative Testing
Fair Testing
Identifying and Classifying
Pattern Seeking

Science

Key Question - All materials conduct electricity true or false? Can you prove it?

Objectives

- explore electricity and generate questions.
- identify electrical appliances and the types of electricity they use.
- identify the dangers associated with electricity.
- construct and draw a simple circuit.
- predict and test which other materials could be used to conduct electricity
- explore patterns produced by altering circuits, making comparative tests to use results to draw simple conclusions
- recognise that a switch opens and closes a circuit.

Assessment - use a simple circuit to create a device that will test whether a material can conduct electricity.

Vocabulary	Electricity, switch, bell, monitor, cell, battery,bulb,buzzer,wire,brighter,dimmer,circuit,wire,broken,conductor,insulator,component

Working Scientifically
Electricity

Research	Exploring the different types of electricity
Identifying and Classifying	Classifying and recording appliances as mains or battery operated.
Comparative Testing **Fair Testing**	Predicting and testing which other materials could be used to conduct electricity
Comparative Testing **Fair Testing** **Pattern Seeking**	Exploring patterns produced by altering circuits and making comparative tests to use results to draw simple conclusions.
Comparative Testing **Fair Testing** **Pattern Seeking**	Switch comparison - recognise that a switch opens and closes a circuit. Using a switch to answer a hypothesis.