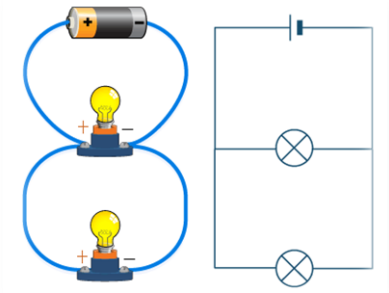
St James' Church of England Primary School
Science Overview Sheet

Year 6 – Electricity



Rationale: Building on their work in Year 4, pupils should construct simple series circuits, to help them answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. They should learn how to represent a simple circuit in a diagram using recognised symbols.
Note: Pupils are expected to learn only about series circuits, not parallel circuits. Pupils should be taught to take the necessary precautions for working safely with electricity.

Pre-unit task: Knowledge Organiser Quizzes
Working Scientifically:
- Systematically identifying the effect of changing one [thing] component at a time in a circuit.
- Designing and making a set of traffic lights, a burglar alarm or some other useful circuit.

Statutory Requirements:
- 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.
- Circuit diagrams can be used to construct a variety of more complex circuits predicting whether they will 'work'.

(Background information for teachers: The effect of changing components in a circuit can be linked to the amount of push from the batteries or the ease of flow of the electricity through devices (motors/bulbs/wires) e.g. a bulb might dim when more bulbs are added).

Overview:

Lesson 1: Circuit Symbols - I can observe and explain the effects of differing volts in a circuit.
Lesson 2: Volts - I can observe and explain the effects of differing volts in a circuit.
Lesson 3: Electricity Investigation 1 - I can plan an investigation & I can understand variations in how components function.
Lesson 4: Electricity Investigation 2 - I can record my data and report my findings.
Lesson 5: Electricity Investigation 3 - I can investigate my results further.
Lesson 6: Series and Parallel Circuits - I understand the difference between series and parallel circuits

Cross Curricular Links

Resources

• Electrical wires with crocodile clips • Bulbs • Bulb holders • Batteries (a selection of batteries with different voltages) • Battery holders (single and double) • Buzzers • Motors • Switches

Notes and Guidance

Most Children will: • explain how our understanding of electricity has changed over time; • draw circuit diagrams using the correct symbols and label the voltage correctly; • decide which variables to control while planning an investigation; • decide how to report their findings; • make new predictions based on the previous results; • select an appropriate scientific enquiry.
Less Able Children will: • know the main circuit symbols and use these to draw circuit diagrams; • be able to plan and conduct an investigation; • plan an investigation based on the results of a previous investigation; • decide how to record data.
More Able Children will: • explain how major discoveries led to the widespread use of electricity; • explain the effect of increasing or decreasing the voltage on different parts of a circuit; • explain how they have ensured a high degree of trust in their results; • identify variations in component function.