Calcot Schools Knowledge organiser — Science

Topic: Electricity	Year 6	Strand: Physics

Prior knowledge from previous year groups:

Year 4— 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.

What will the children know by the end of the unit?

- Work scientifically by systematically identifying the effect of changing one component at a time in a circuit; e.g. designing and making a set of traffic lights, a burglar alarm or some other useful circuit.

- 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.

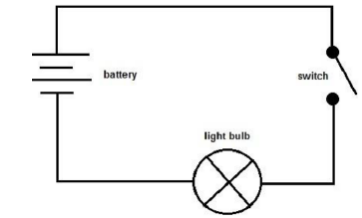
- Use recognised symbols when representing a simple circuit in a diagram.

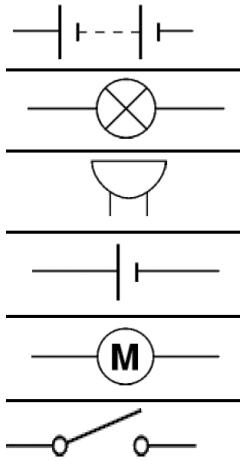
Cross-curricular links:

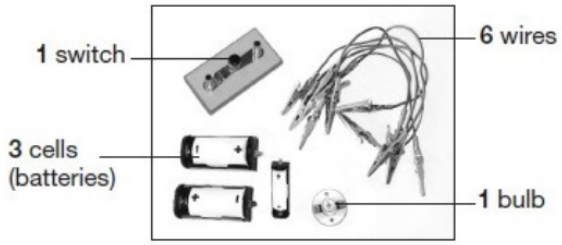
- Literacy (explanation or conclusions writing — circuits investigation; instructions writing—how to create a dimmer switch).

- Maths (recording and presenting data from investigations — e.g.

Diagrams:







Vocabulary:

electricity	ammeter	battery
appliance	cell	buzzer
circuit	component	current
conductor	device	insulator
resistor/ resistance	source	switch
voltage	motor	bulb

Investigate!

- Match circuit symbols to meanings and words.
- Circuits investigation: predict, then investigate what happens when bulbs, batteries, resistors are added in a circuit.
- Buzzer investigations: what happens when the length or thickness of wires change, number or voltage of cells increases or decreases.
- Create a dimmer switch (practical).
- Create decorative lighting circuit (prototype), followed by 'Dragons' Den' style presentations.
- Make a set of traffic lights or a burglar alarm (design project).