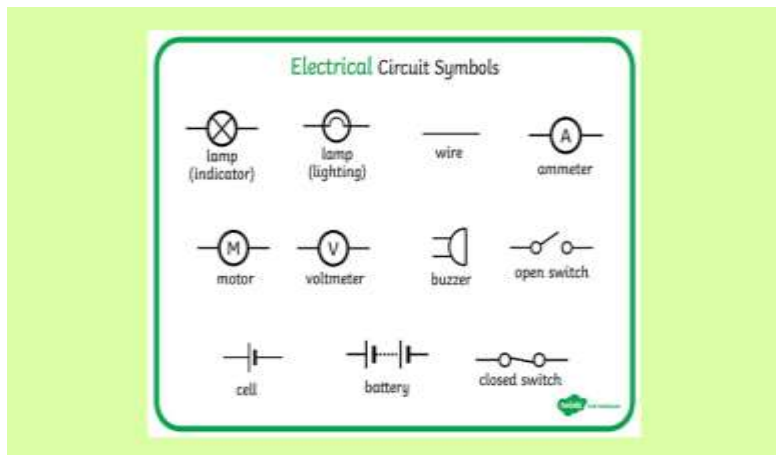


Science: electricity
Y6 summer term

Knowledge and understanding:	
✓	Building on their work in year 4, pupils should construct simple series circuits, to help them to 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.
✓	Pupils might work scientifically by: systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar alarm or some other useful circuit.
National Curriculum working scientifically statutory requirements:	
✓	6e1: associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
✓	6e2: 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
✓	6e3: use recognised symbols when representing a simple circuit in a diagram.

Electrical circuit symbols



Key Vocabulary:	
circuit	a closed loop for electricity to travel around
component	a part used in an electrical circuit
electricity	a form of energy caused by electrons moving
cell (battery)	a stored source of electricity
switch	a switch turns an electrical circuit on or off by completing or breaking the circuit
conductor	an object that allows electricity to flow through it easily (objects made of metal are good conductors)
insulator	an object that does not allow electricity to flow through it easily
circuit symbols	see diagram
voltage	a force that makes electricity flow through a wire (it is measured in volts)
motor	a machine that turns electrical energy into movement
series circuit	A series circuit consists of a single pathway through which electricity can flow. All of the parts of a series circuit—power source, wires, and devices—are connected along the same pathway; the devices are connected one after another, with no branches. Current moves through one device, then the next, and so on.
parallel circuit	A parallel circuit contains multiple pathways, or branches. Each device in a parallel circuit is on a separate branch. The current flowing through a parallel circuit divides as it reaches each branch.

Electricity: the facts:
We use scientific symbols to represent the components (parts) of a circuit
The brightness of a bulb or the loudness of a buzzer is affected by the number of cells in a circuit.
The brightness of a bulb or the loudness of a buzzer is affected by the voltage of cells in a circuit.
The number of components in a circuit can affect how they function.
The arrangement of components in a circuit can affect how they function.
The length of wires in a circuit can affect how the components function.

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Skills

- Investigating the effect of adding more bulbs to a circuit
- Investigating the effect of adding more cells to a circuit
- Investigating the effect of adding more buzzers to a circuit
- Investigating the effect of adding more motors to a circuit
- Make circuits using a different number of components (draw circuit diagrams using conventional symbols)
- Explore different types of switches and their suitability for different purposes

Sequence of Learning:

Objectives (key knowledge):

1. To learn the function of electrical components and match them to their symbols.	2. To know the different types of circuits: series and parallel.	3. To learn the concept of voltage and the effect this has on different components in a circuit.	4. To learn how variations to circuits can affect how components in a circuit work.
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The objectives above may run over two or more lessons each.