

Amport CE (Aided) Primary School



COURAGE COMPASSION RESPECT

Science Progression
(From HIAS Science Team)

PHYSICS Electricity

	Substantive Knowledge from Learning Journeys	National Curriculum Statutory Requirement
Year 1		
Year 2		
Year 3		

Year 4	<p><u>Electricity</u></p> <p>Knowledge Block 1- Electricity as a power source</p> <ul style="list-style-type: none"> • Lots of devices are powered by electricity • Electricity comes from a source There are two main sources- batteries and mains <p>Knowledge Block 2- What batteries do</p> <ul style="list-style-type: none"> • A battery pushes electricity to the device. • To be able to push electricity the battery must be connected to the device using wires • This is called a circuit <p>Knowledge Block 3- Making devices work harder</p> <ul style="list-style-type: none"> • If there are more batteries added to a circuit this provides a bigger push on the electricity • This will make the device work harder e.g., brighter bulbs, faster spinning motor, louder buzzer <p>Knowledge Block 3- Insulators and conductors</p> <ul style="list-style-type: none"> • Some materials will allow electricity to flow through them- Conductors • Metals such as silver, gold and copper are good conductors. Water is also a conductor of electricity. • Other materials will not allow electricity to flow through them- Insulators • Plastic, wood, glass and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity. • A switch opens and closes a circuit 	<p><u>Year 4 Electricity</u></p> <p><i>Pupils should be taught to:</i></p> <ul style="list-style-type: none"> • <i>identify common appliances that run on electricity</i> • <i>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</i> • <i>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</i> • <i>recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</i> • <i>recognise some common conductors and insulators, and associate metals with being good conductors.</i>

Year 5	Substantive Knowledge from Learning Journeys	<i>National Curriculum Statutory Requirement</i>

Year 6

Controlling electrical circuits

Knowledge Block 1: Pushing electrical current

- Current is the flow of electricity around a circuit.
- The power supply in a circuit pushes the current round the circuit
- The voltage of the power supply is a measure of this push
- Voltage is measure in volts
- Batteries have a limited store of energy and when this is gone, they can no longer push the current

Knowledge Block 2: Electrical current

- Current is the flow of electricity through a **conductor**
- When current passes through a device it makes it work
- Increasing the voltage (the number of cells in the battery) increases the current. The larger the flow of current, the harder the device works

Knowledge Block 3: Electrical resistance

- All parts of a circuit offer **resistance** to electrical current including the wires.
- Resistance is the slowing down of electrical current
- The more devices added into a circuit the greater the resistance
- This means less current flows around the circuit

Year 6 Electricity

Pupils should be taught to:

- *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.*