KS2.CA.T3	Area of study: Electricity Unit aims / outcome: • Identify common appliances that run on electricity • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, blubs, switches and buzzers. • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp us 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 light in a simple series circuit. • Recognise some common conductors and insulators and associate metals with being goof conductors.

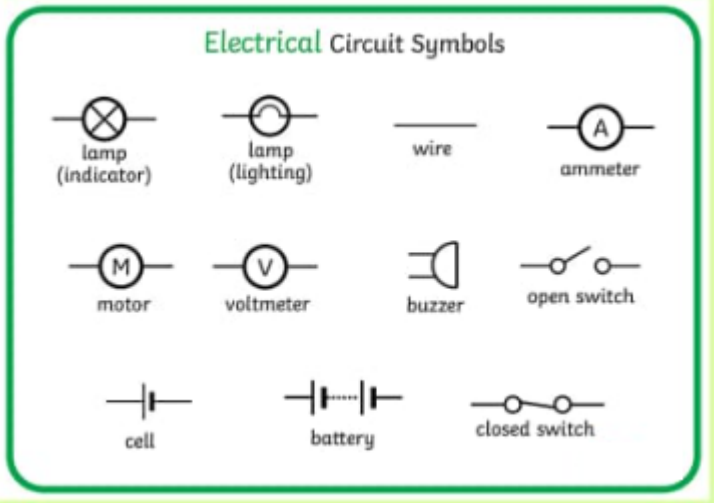
Geographical concepts to organise knowledge:
Physics- studies matter and motion and how it interacts with energy and forces.
Working Scientifically

Key strands of learning:

Hierarchical Strands: (see progression) e.g. plants (Build year on year)	Cumulative Strands: e.g. environment (key features throughout NC)

Learning in Reception:	Tier 2	Tier 3
	New buzzer, lamp, wire **Review –** Inventors Electricity Battery	**New** appliance Series Circuit Complete Circuit cell open and closed switches voltmeter generate power hazards Overloaded sockets Current Incandescent Phonograph Kinetograph insulators conductors conductive properties

NC objective:	Vocabulary and crucial knowledge:
• identify common appliances that run on electricity • construct a simple series electrical circuit, identifying and	Context of study: This is the first science unit where pupils learn about electricity as part of the discipline of **physics**. Children will have limited prior knowledge before studying this unit. During this unit, pupils identify common appliances that run on electricity and construct a simple series electrical circuit. Identifying and naming its basic parts. Pupils investigate 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. Pupils recognise that a switch opens 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	closes a circuit and associate this with whether a lamp will light or not. Children will be revisiting knowledge taught in KS1.CA.T2.1 and children will have to identify between objects and the material it is made. Then build upon this learning to identify if the material is a common conductor or insulator. The knowledge acquired in this unit will build upon previous taught learning in KS1.CA.T2.1 whereby pupils compare and group together everyday materials based on their proprieties taught. <u>Crucial Knowledge:</u> Know that electricity is dangerous, and know how to be safe using it. Know how electricity travels through a circuit, and the various components that create a circuit (battery, cell, open and closed switches, buzzer, lamp, wire and voltmeter). Note: all batteries are cells, but not all cells are batteries. A cell is a power source, a battery is a power source that uses chemical reactions to generate power. Know the correct symbols to use when drawing circuits.  Know appliances that run on electricity in school and at home and those that do not. Identify the hazards that might be faces in the home. 1) Overloaded plug extension sockets 2) Exposed wires 3) Damaged sockets 4) Wires left along the carpet for people to trip over 5) Electrical appliances and wires near water 6) Placing metal into electrical appliances or open sockets. Know how to prevent these hazards and know not to touch anything they feel is unsafe. Know how to create simple circuits using a battery, a bulk and a switch.

	Know that an open switch will not complete the circuit and that a closed switch will complete the circuit. Know that electricity must be able to flow around the circuit for component to work. Know the difference between mains electricity and battery powered electricity. Know that the word current describes the flow of electricity in a circuit. <u>Working Scientifically:</u> <u>Pattern Seeking</u> Explore using the different components in the circuits. For example, does the brightness alter depending on how many batteries or lightbulbs are in the circuit. • Observe: what happens when different components are added or taken away from the circuit. • Record: what has been discovered around the power of batteries and the number of components in a circuit- use pictures and writing to explain. <u>Fair test</u> Plant an investigation to check the conductive properties of materials, with pupils predicting that metals will allow a circuit to be complete, but the other materials will not. Test the predictions and record in a table. • Predict- which materials they think will conduct electivity and which materials are insulators. • Set up: complete a fair test by using the same components for each material that is tested. • Record: which materials worked and turned the lightbulb on and which ones didn't- did they match the predictions. <u>Key scientists of study:</u> Thomas Edison