SUBJECT: Science YEAR: 7 MTP TITLE: Electricity HALF TERM: _ NO. OF LESSONS (approx): 10

Deliberate and specific retrieval of expected prior knowledge (be specific)

KS2

- Describing electricity as a source of energy in circuits
- Identifying basic circuit symbols and the components they represent
- Construction of a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- Recognition that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- Recognition of some common conductors and insulators, and associate metals with being good conductors

Academic transformation (be specific)

By the end of the topic, students should be able to:

- Identify circuits as series or parallel
- Describe the advantages of parallel circuits
- Construct and draw diagrams of series and parallel circuits.
- Define current and state that it is measured in amperes
- Define potential difference and state that it is measured in volts
- Understand that resistance is measured in ohms, and is the ratio of potential difference (p.d.) to current.
- Calculate resistance using Ohm's law
- Knowledge of how current and voltage change in series and parallel circuits
- Knowledge that separation of positive or negative charges when objects are rubbed together leads to static electricity

Personal transformation (2 or 3)

Below are suggested ideas, they currently aren't included in the topic:

- Link of static electricity to thunderstorms
- Identification of the current and voltage of appliances
- Understanding of how electricity is generated and the need to transition to green alternatives.
- Nerves are electrical conductors

Can I Learning Questions

- *Can I describe what electricity is?*
- *Can I identify common conductors and insulators?*
- *Can I identify and draw circuit symbols?*
- *Can I describe the difference between series and parallel circuits?*
- *Can I define potential difference?*
- *Can I define and calculate the resistance of a circuit?*
- *Can I conduct a practical to calculate resistance in series and parallel circuits?*

Literacy

Tier 2 vocab

Calculate, define, describe, identify, conduct, battery, wire, electricity, charge, compare

Tier 3 vocab

Circuit, current, potential difference, voltage, resistance, series, parallel, battery, switch, conductors, insulators, electron,

Misconceptions (5 or 6 examples)

- Electricity is a substance e.g. it can leak out of a circuit
- Batteries store electrons/charge and sends them through empty wires
- Batteries provide a constant current rather than a constant potential difference
- Thicker wires have lower resistance because they have more space
- All bulbs have the same resistance