

## Definitions and Concepts for AQA Physics A Level

### Topic 5: Electricity

**Ammeter:** A device that measures the current in the loop of the circuit that it is connected in series with. An ideal ammeter is modelled to have zero resistance.

**Current:** The rate of flow of charge in a circuit.

**Electromotive Force:** The amount of energy transferred by a source, to each unit of charge that passes through it.

**Internal Resistance:** The resistance to the flow of charge within a source. Internal resistance results in energy being dissipated within the source.

**Light Dependent Resistor:** A light sensitive semiconductor whose resistance increases when light intensity decreases.

**Ohmic Conductor:** A conductor for which the current flow is directly proportional to the potential difference across it, when under constant physical conditions.

**Ohm's Law:** The current and potential difference through an ohmic conductor held under constant physical conditions are directly proportional, with the constant of proportionality being resistance.

**Parallel Circuits:** Components are said to be connected in parallel when they are connected across each other (separate loops).

**Potential Divider:** A method of splitting a potential difference, by connecting two resistors in series. The total potential difference is split in the ratio of their resistances.

**Resistance:** A measure of how difficult it is for current to flow through a material.

**Resistivity:** A quantity that is proportional to an object's resistance and cross-sectional area, and inversely proportional to the object's length.

**Resistors in Parallel:** The potential difference across resistors connected in parallel is identical for each resistor. The current is split between the resistors. The total resistance is equal to the inverse of the sum of the inverses of the resistances of the resistors.

**Resistors in Series:** The current through resistors connected in series is identical for each resistor. The potential difference is split in the ratio of their resistances. The total resistance is equal to the sum of the resistances of the resistors.



**Series Circuits:** Components are said to be connected in series when they are connected end to end (in one loop).

**Superconductor:** A material which has zero resistivity when the temperature is decreased to, or below, the material's critical temperature. Superconductors can be used to produce strong magnetic fields and reduce energy loss when transmitting electric power.

**Terminal Potential Difference:** The potential difference across the terminals of a power source. It is equal to the source's emf minus any voltage drop over the source's internal resistance.

**Thermistor:** A temperature sensitive semiconductor whose resistance increases when temperature decreases.

**Voltmeter:** A device used to measure the potential difference across components. An ideal voltmeter is modelled to have infinite resistance.

