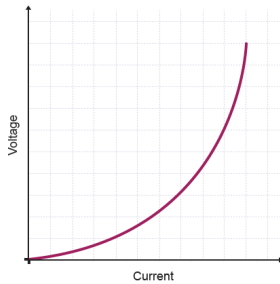
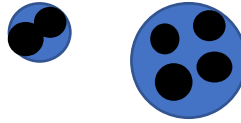
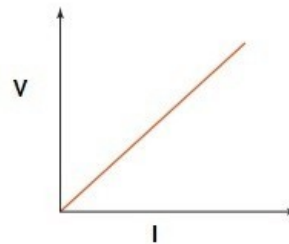


Factors Affecting Resistance:

1. Nature of the materials (resistivity)
2. Cross section of conductor
 - E.g.
3. Length of conductor
 - Shorter (lower Resistance)
 - Longer (higher resistance)
4. Temperature

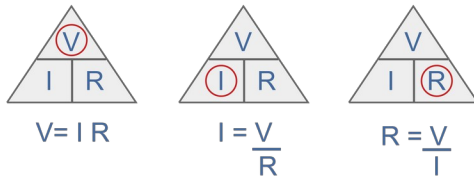


Non-Ohmic
It is non-linear



Ohmic
It is linear

Ohms Law :



V= Potential difference (Volts)
I= Current (amperes)
R= resistance (Ohms)

** If non-ohmic we do a specific point in the graph

e.g. A power line has a PD of 250V and a resistance of 1.0K Ω

$$PD = 250V \quad R = 1000\Omega \quad I = ?$$

$$V = IR$$

$$250 = 1000 \times I$$

$$I = 250 / 1000$$

$$= 0.25 \text{ A}$$

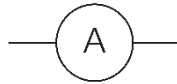
Conventional Current:

as moving in the same direction as the positive charge flow. (positive \rightarrow negative)

Electron Current:

is what actually happens and electrons flow out of the negative terminal, through the circuit and into the positive terminal of the source. (negative \rightarrow positive)

Ammeter:



Use for **current**

- Place it anywhere in circuit
- Connect in series
- Internal resistance is very small

Why its connected in series

Ammeter measures the electrons, therefore they need to go through it



Why does it have a low resistance?

Because you don't want to block the charge flow

Voltmeter:

Use for **potential difference**

- Connect in parallel
- Internal resistance is very high

Why are voltmeters connected in parallel across a resistor?

Because we want to know the voltage across a certain element, so either side. Voltage is the electric potential difference between two points of space. There is no point of asking what the voltage through a circuit is

Why do volt meters have a high resistance?

We want to make sure minimal current is going through the Voltmeter. So, by having a high resistance it makes sure the current flows through the resistor.

What is a rheostat and its function?

It is a variable resistor. - you can change the resistance

*Function is to regulate/ identify the current flow, it also ensures the circuit doesn't blow

Why can a voltmeter and ammeters be connected one way, but it doesn't matter with resistors?

The meter can only go one way (polar). They both have a - and + positive terminal and the dial can go only one way. For resistors it doesn't matter due to the current being able to go any direction.