ANISHA MEPANI 110A

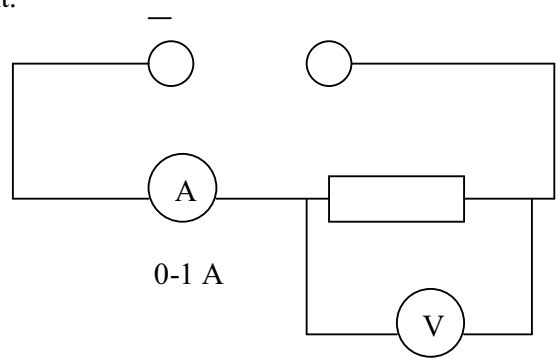
Physics Coursework (Resistance of a wire, Insulation) Ms. Besford

AIM: The aim of this investigation is to investigate the relationship between current and voltage for a range of components

BACKGROUND KNOWLEDGE

The key variables of this experiment are current and voltage.
Current is a flow of electrons. In a series circuit the current is the same everywhere. Ammeter is used to measure current. For electrons to flow a complete circuit is needed. In a parallel circuit the current is split between the branches. Amps (A) is the unit of current. Current does not get used up as it flows around the circuit.
More electrons / faster electron means bigger current.

Voltage is the amount of energy each electron has e.g. When a car is filled with petrol it goes faster as it has more petrol to burn. The more batteries the more voltage (energy) each electron has, so the brighter the bulb. In a series circuit the voltage is shared. In a parallel circuit each branch gets the same voltage as the battery. We measure voltage with a voltmeter in volts (V). Voltmeter must be connected in a parallel circuit.



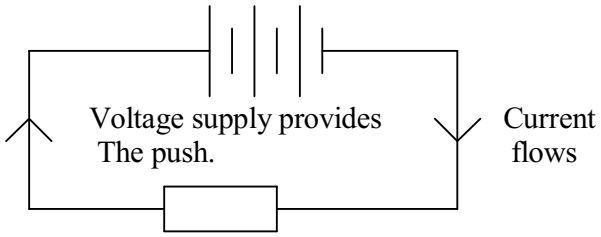
0-1 A

0-5 V

Resistance is anything in the circuit, which slows down the flow of current. Resistance makes it more difficult for the current (electrons) to flow. High resistance means that the current gets lower. High temperature means less resistance (big current) and low temperature means high resistance (small current) E.g. When the car is driving along the track, if there are too many humps the car will slow down where as if there are less humps the car would go faster.

If you increase the voltage then more current will flow
If you increase the resistance then less current will flow

The voltage pushes the current round the circuit, and the resistance is opposing it (slowing). The voltage and the resistance decide how big the current will be.



Resistance – opposes the flow

As current passes through resistance the resistor will get hot this is because electrical energy is changed into heat energy. The more current that flows more heat is produced. The higher the resistance means less heat is produced. This is because big resistance means less current flows through and less heat is produced. High voltage means more heating, this is because it pushes more current.

WORK OUT RESISTANCE IS TO RESISTANCE = VOLTAGE