2.3.1 Current in series and parallel circuits

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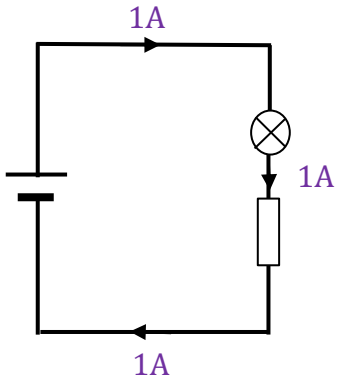
Charges flow around a circuit when the circuit is complete. The charges pick up energy in the battery/power supply and distribute it to components in the circuit. Charges are not destroyed in this process. We say that "charge is conserved".

There are two rules for working out currents in circuits:

Rule 1 – current in a series circuit

The current is the same all the way around a series circuit.

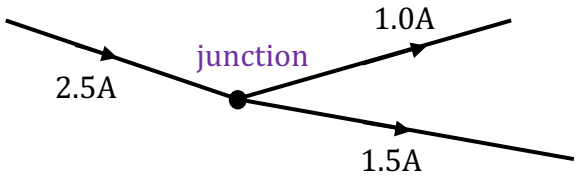


As charges can't be created or destroyed the rate of flow of charge (current) is the same at any point around the circuit - in this case 1A.

Rule 2 – current at a junction

the sum of currents entering a junction = the sum of currents leaving a junction

Because we can't create or destroy charges, the amount of charge flowing into a junction is equal to the amount of charge leaving a junction. (This is due to a conservation of charge). The rate at which charge flows is also conserved. If charges enter the junction more quickly, they will need to leave the junction more quickly. Electric current is the rate of flow of charges.



Unlike series circuits, parallel circuits contain junctions.

(1) By applying rules 1 and 2, work out the missing currents in the following circuits. Write them in the spaces. (Hint: Apply rule 2 to the junctions.)